

# STEVENSON & HOWELL'S

## "EXTRA QUALITY"

### Soluble Essence of Jamaica Ginger

CONCENTRATED IN VACUO.

GUARANTEED PURE AND FREE FROM CAPSICUM.

PRICE	{	Per lb. 4/6.
		„ 4/3 in 20-lb. quantities.
		„ 4/0 in 60-lb. „

### Opinion of "THE LANCET," July 3, 1886.

"SOLUBLE ESSENCE OF JAMAICA GINGER.

"Guaranteed free from Capsicum. (Stevenson & Howell, Southwark Street.)

"According to our analysis and examination, this is a perfect Ginger Essence. We have searched most carefully for the active principle of capsicum, and have not found the slightest trace. No less than 98·8 per cent. of the essence is volatilised by heat, including, of course, the fragrant essential oil; and of the residue, only one-half is soluble in ether, so that the fixed resin in the essences only amounts to 0·6 per cent. As might be expected from its composition, the flavour of this essence is more delicate than that of the finest root."

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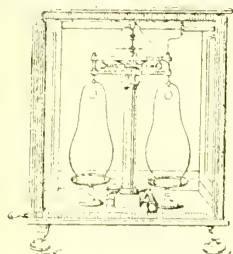
**SPECIAL HALF-YEARLY ISSUE**  
OF  
**'THE CHEMIST & DRUGGIST,'**  
**JULY 31, 1886.**

ADVERTISEMENTS for the above must reach the Publisher not later than WEDNESDAY NEXT, the 28th inst.

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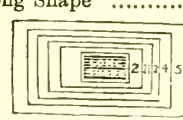




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### MANUFACTURED BY WILLIAM MATHER,

Are manufactured of the same kind of ingredients as those sanctioned and ordered by Dr. Andrew Smith, Director-General of Her Majesty's Army and Navy Ordnance Medical Department, for the use of the Soldiers and Marines in Scutari Hospital.

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			Inches.	d.		s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Heart Shape 	.....	1	3 x 4½	1 size.	"	0 8	0 8	0 8	0 8	1 4	1 0
	.....	2	4½ x 6	1½ "	"	1 0	1 0	1 0	1 0	2 0	1 6
	.....	3	4½ x 7½	2 "	"	1 6	1 6	1 4	1 4	2 8	2 0
	.....	3½	5½ x 7½	3 "	"	2 3	2 3	2 0	2 0	4 0	3 0
	.....	4	6½ x 8½	4 "	"	3 0	3 0	2 8	2 8	5 4	4 0
Long Shape 	.....	5	8 x 9½	6 "	"	4 6	4 6	4 0	4 0	8 0	6 0
	.....	1	2¾ x 4	1 "	"	0 8	0 8	0 8	0 8	1 4	1 0
	.....	2	4½ x 6½	2 "	"	1 6	1 6	1 4	1 4	2 8	2 0
	.....	2½	4½ x 8½	3 "	"	2 3	2 3	2 0	2 0	4 0	3 0
	.....	3	5½ x 9½	4 "	"	3 0	3 0	2 8	2 8	5 4	4 0
Oval Shape 	.....	4	6½ x 11	6 "	"	4 6	4 6	4 0	4 0	8 0	6 0
	.....	5	7½ x 14½	8 "	"	6 8	6 8	6 0	6 0	12 0	8 0
	.....	1	4½ x 6½	2 "	"	1 6	1 6	1 4	1 4	2 8	2 0
Saddle Shape 	.....	2	6½ x 8½	4 "	"	3 0	3 0	2 8	2 8	5 4	4 0
	.....	3	7½ x 9½	6 "	"	4 6	4 6	4 0	4 0	8 0	6 0
	.....	1	6½ x 12½	6 "	"	4 6	4 6	4 0	4 0	8 0	6 0
Wrist 	.....	2	7 x 15	8 "	"	6 8	6 8	6 0	6 0	12 0	8 0
	.....	3	8 x 16	12 "	"	8 8	8 8	8 0	8 0	15 6	12 0
	.....	1	3 x 10½	3 "	"	2 3	2 3	2 0	2 0	...	...
Knee 	.....	2	4½ x 15	6 "	"	4 6	4 6	4 0	4 0	...	...

BREAST PLAISTERS.		No.	Size of Leather	Retail Prices.	Per doz.
				d.	s. d.
 Emp. Plumbi, for Ladies' Breasts .....	.....	1	Diam. 6½ in.	4 size	2 8
	.....	2	" 7½ "	6 "	4 0
	.....	1	" 6½ "	" "	4 0
	.....	2	" 7½ "	" "	6 0
BREAST PLAISTERS.		No.	Size of Leather	No. 1 Quality. Per doz.	No. 2 Quality. Per doz.
				s. d.	s. d.
Emp. Belladonna, for Ladies' Breasts .....	.....	1	Diam. 6½ in.	5 4	4 0
	.....	2	" 7½ "	8 0	6 0
	.....	1	" 6½ "	8 0	6 0
	.....	2	" 7½ "	12 0	9 0

**HOSPITAL PLAISTER**, on Black Cloth, 16 in. wide, doz. yds. 8/0  
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NAME	Glazed Cloth	Unglazed Cloth	Linen	Swans-down	Mole-skin	Skins of Leather
Emp. Adhasivum Opt. ..	4/0	5/6	12/0	12/0	21/0	4/0
" Adhasivum .....	3/6	"	"	"	"	"
" Ammon. c. Hydrarg ..	16/0	"	"	30/0	36/0	5/6
" Antim. Pot. Tart. ..	10/0	"	"	24/0	30/0	4/0
" Belladonna .....	18/0	20/0	27/0	27/0	36/0	5/6
" Calefaciens .....	11/0	12/0	15/0	15/0	24/0	4/6
" Cerat Saponis ....	8/0	9/0	14/0	14/0	24/0	4/6
" Dreadnought ....	9/0	10/0	14/0	14/0	24/0	4/6
" Elemi .....	9/0	10/0	14/0	14/0	24/0	4/6
" Ferri .....	9/0	10/0	14/0	14/0	24/0	4/6
" Galbani .....	14/0	"	"	24/0	30/0	4/6
" Hydrarg. ....	14/0	15/0	18/0	18/0	27/0	4/6
" Iodine .....	16/0	"	"	30/0	36/0	5/6
" Opii .....	18/0	20/0	27/0	27/0	36/0	5/6
" Picis Co. ....	11/0	12/0	15/0	15/0	24/0	4/6
" Plumbi .....	5/6	6/6	12/0	12/0	21/0	4/0
" Potass. Iodid. ....	16/0	"	"	30/0	36/0	5/6
" Resinae .....	5/6	6/6	12/0	12/0	21/0	4/0
" Roborans .....	6/0	7/0	12/0	12/0	21/0	4/0
" Saponis Alb. ....	5/6	6/6	12/0	12/0	21/0	4/0

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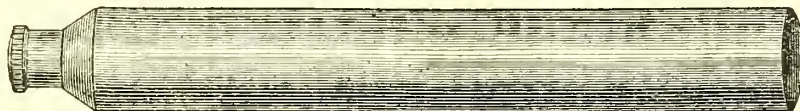
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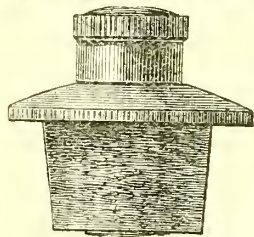
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For Perfumes Artists' Colours, Soaps, Cosmetics, Creams, Oils, Varnishes, &c. These Tubes are inexpensive and portable, and may be applied to many useful purposes besides those above mentioned.

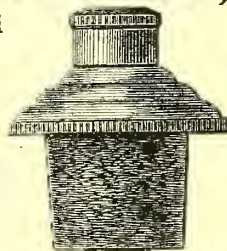
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## THE PORTABLE METAL SPRINKLER STOPPER,

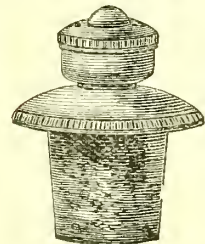


With Cork fitted thereon for bottles of any size, and having apertures of various dimensions, especially adapted for Perfumes, Hair Washes, Lime and Glycerine Essences, &c.

These handsome stoppers give a character and finish to the most ordinary bottles to which they may be applied. Gilt or plain; and put up if required in handsome glass lid boxes, suitable for shop counters and show cases, at moderate prices.



## THE "TORSION" PATENT SPRINKLER.



No. 18a.

for Bottles of all Sizes and Shapes," with the additional security it affords, that the Cap can never be entirely unscrewed, consequently it cannot be lost. It is specially effective as a Sprinkler, while giving a more prompt and copious, yet economic, supply, through the improved action of the Cap. Such combined advantages, in an article of exquisite finish, have long been desired, and it is thus submitted for general approval, and its usefulness when tried will be appreciated by all.

Illustrations, Price Lists, &c., can be had on application, or through any Wholesale House in town or country. All Orders received direct will be promptly attended to.



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**CAUTION.**—All Stoppers of our Manufacture are made of Pure Tin, and have the name of H. BROOKS & CO. stamped on the under side of the rim.

All Tubes are made of Pure Tin unless specially ordered of Mixed Metal, from the smallest size up to 13 in. by 23.

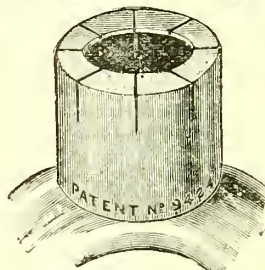


# BREIDENBACH'S PATENT LOCK STOPPER.

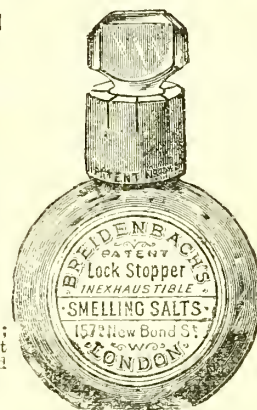
## INEXHAUSTIBLE SMELLING SALTS.



BRITISH  
PATENT  
No. 9424,  
1885.



PATENTS  
APPLIED FOR  
IN ALL  
COUNTRIES.



By this means the stopper is never released from the bottle except when required; it is then simply withdrawn in the ordinary manner and replaced without the slightest difficulty. The object of this invention is to retain the PUNGENCY and STRENGTH of the Salts for a much longer period than in the ordinary bottle.

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# DESIDERATUM MIXER BRACHER'S PATENT

UNSOLICITED TESTIMONIALS IN FAVOUR OF THE "DESIDERATUM" MIXER (BRACHER'S PATENT).

GENTLEMEN.—Having for the past ten years been engaged in mixing quantities of Powders, I have been on the look-out for a machine to do the work, but have been disappointed on three occasions. Yours is the only one I know of that combines the three operations of Crusher, Sifter, and Mixer, and is free from the wedging, so troublesome in other machines. After six months' trial, mixing nearly 1 cwt. per week, the apparatus is as good as new, and anyone who can turn a handle may be trusted to mix powders, as it is impossible to turn out lumpy and unmixed material with Bracher's machine.

Aberdeen and Hanover Pharmacies, Scarborough, October 2nd, 1885.

White Horse Street, Boar Lane, Leeds, June 1st, 1883.

Yours, &c. (signed), ALFRED JONES.

DEAR SIRS.—The Patent "Desideratum" we had from you 3 mo., 25/85, answers our purpose.

We are, dear sirs, yours respectfully,

Messrs. BRACHER & CO.

GOODALL, BACKHOUSE & CO.

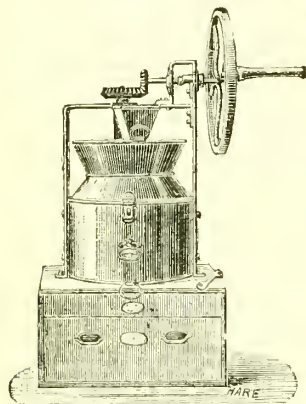
Preston Park Pharmacy, Brighton, May 1st, 1886.

GENTLEMEN.—I think it only fair to tell you that I am delighted with the "Desideratum" Mixer you supplied me with last summer. I mix Custard Powders, Tooth Powders, Violet Powders, as well as the Crown Veterinary Powders, for all of which purposes it answers admirably. Wishing you the success you deserve,

I am, Gentlemen, yours very truly,

JOHN GRINSTED.

Messrs. BRACHER & CO.

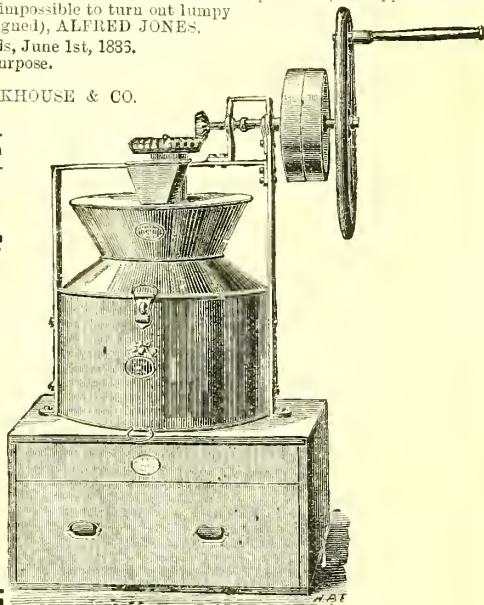


BRACHER &

CALCUTTA INTERNATIONAL  
EXHIBITION.

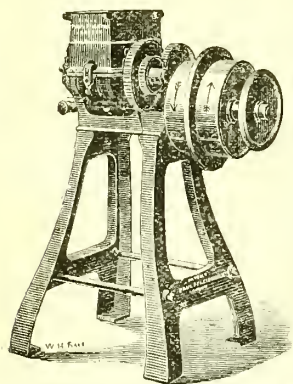


GOLD MEDAL.



Send for Illustrated Price List and full particulars, Post Free.

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\* \* All Communications to be addressed to Wincanton.



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PILL MASS KNEADING MACHINES.

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FULL PARTICULARS OF ABOVE ON APPLICATION TO

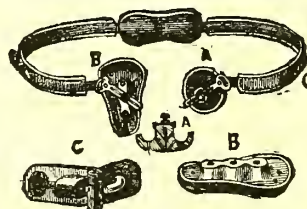
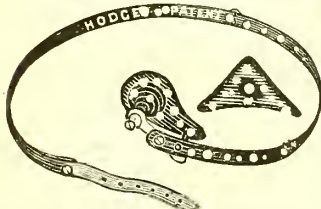
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The *Lancet*, in recommending Hodge's Truss, on Oct. 3, says:—"The pad gives an elastic pressure—a very great advantage—enabling it to be worn with great comfort. The truss is light, though strong; possesses such advantages that it is comfortable, adapts itself readily to the movements of the body, and is very effective."

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FACTORY: 18 JAMES STREET, W.



WHICH IS CHANGED BY HEAT TO A JET BLACK.

Put up for Retail Sale in 6d., 1s., 2s., 2s. 6d., and 5s. Bottles.

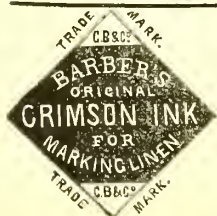
Also Barber's Concentrated Liquid COCHINEAL, for Colouring Jellies, Custards, &c.

Put up in 6d. and 1s. Bottles.

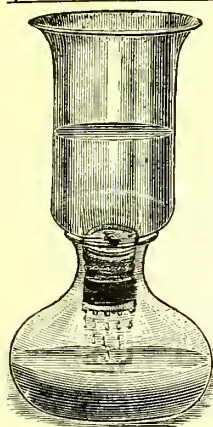
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STYLE "X."—Plain: 1 pint, 3/;  
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1 pint, 3/6; 2 pints, 5/; 3 pints, 6/.

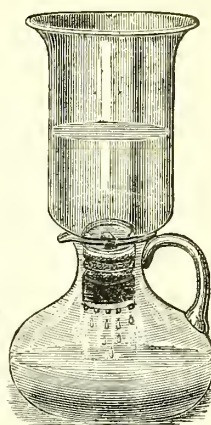
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(LIM.),

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LONDON.



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# KRONENQUELLE

CROWN SPRING (Registered).

THE NEW NATURAL MINERAL WATER for the Treatment of DISEASES of the KIDNEYS & BLADDER.  
**SPECIFIC FOR GOUT.**

This natural Lithia Spring, although only recently brought before the Medical Profession, has gained a high reputation on account of its quick and decided action even in most obstinate cases.

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Through all Wholesale Houses and Chemists, or from the

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CAUTION.—Messrs. W. SCHACHT & CO. beg to inform the Trade generally that all cases are labelled "KRONENQUELLE (Registered)," together with their name and address printed in BLUE INK.

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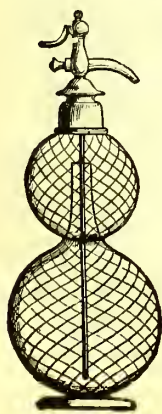
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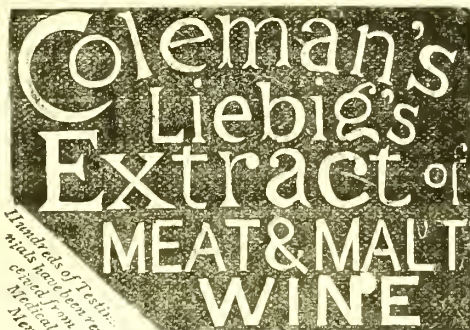
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Is a Delicious Beverage and Tonic made from Port Wine, Liebig's Extract of Meat and Extract of Malt.

**NUTRITIOUS, STRENGTHENING,  
STIMULATING**

*Flesh-forming, and Health-restoring.*

SUITABLE FOR THE ROBUST IN HEALTH  
AS WELL AS THE INVALID.

Important Unsolicited Testimonial from  
**M. K. HARGREAVES, Esq., M.D.**

Wellington House, Bruce Street, Leeds,  
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Gentlemen,—I received sample bottle of your "Extract of Beef and Malt Wine." I find that it is the same as I used extensively over two years ago, and which I found of so much benefit that I have used it ever since in my practice, and numbers of my patients get it for themselves. I have great confidence in it as a tonic and restorative. It is also very useful in cases of consumption.

I wish you would send me one dozen bottles, and then will send you money by return. You can send it by rail by G.E.R. on to the G.N.R., and then it will come direct to Leeds.

I am, yours truly,

**M. K. HARGREAVES, M.D.**

Sold by all Druggists, Wine Merchants, and Patent Medicine Vendors in the United Kingdom, in Bottles, 2s. 9d. and 4s. 6d. each.

Ask for COLEMAN'S LIEBIG'S EXTRACT OF MEAT AND MALT WINE, and "see that you get it."

2/9 size, 30s. per doz. 4/6 size, 50s. per doz.

Carriage paid to any Railway Station in Great Britain.

Sample Pint Bottle sent free by Post on receipt of 33 stamps.

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**Yorkshire Relish**

THE MOST DELICIOUS SAUCE IN THE WORLD.

This cheap and excellent Sauce makes the plainest viands palatable, and the daintiest dishes more delicious. To Chops and Steaks, Fish, &c., it is incomparable. Sold by Grocers, Oilmen, Chemists, &c., in Bottles, 6d., 1s., and 2s. each.

CAUTION.—On each Yorkshire Relish Label is a Willow Pattern Plate and name, GOODALL, BACKHOUSE & Co. No other is genuine.

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THE BEST IN THE WORLD.

Makes delicious Puddings without Eggs, Pastry without Butter, and beautiful light Bread without Yeast. In 1d. Packets; 6d., 1s., 2s., and 5s. Tins.

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For making delicious Custards without Eggs, in less time and at half the price. Unequalled for the purposes intended; will give the utmost satisfaction if the instructions given are implicitly followed. Sold in boxes 2d., 6d., and 1s. each.

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Acknowledged to be the only real substitute for eggs yet discovered. Its action on Cakes, Puddings, &c., &c., resembles that of the egg in every particular, enriching them in colour and flavour, rendering them most wholesome and nutritious. One penny packet will go as far as four eggs; and one sixpenny tin as far as twenty. In 1d. Packets; 6d. and 1s. Tins.

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*As Supplied to the leading London Hospitals.*

A Trial of our Preparations will at once prove  
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12½ gals. for £1, Cask free.  
SPECIAL LINES FOR CASH BUYERS!!

**TYRER'S**  
WORCESTER SAUCE,  
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BEST VALUE THAT MONEY CAN PURCHASE.

Prices and Samples sent free of all cost by  
PETER TYRER, The "Borough" Ketchup & Sauce Maker,  
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From their SOLE ADDRESS, No. 11  
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Mother's Milk.

Easy of Preparation—requires merely the addition  
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UNIVERSALLY RECOMMENDED BY PHYSICIANS.



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1,000 2,000 3,000 5,000 10,000  
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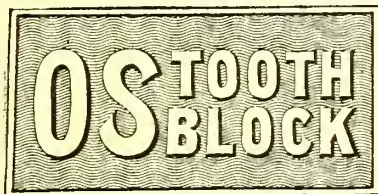
# SUPPLEMENT TO "THE CHEMIST AND DRUGGIST."

SATURDAY, JULY 24, 1886.

i

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OSCAR SUTTON & CO., Preston, Lancashire.



REGISTERED TRADE MARK.

The following Testimonial from Mr. JAMES A. REID, Chemist and Druggist, Helensburgh, we quote by special permission: "Enclosed please find cheque in payment for the Tooth Blocks. I am highly pleased with their new form and extra inducements presented through the leatherette labels and chemist's own name stamped on each block. These give one special encouragement to keep prominently before an intelligent public what UNDOUBTEDLY IS THE GREATEST DENTIFRICE OF THE AGE."

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Loose, without Boxes.

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**LOZENGES, BOILED SUGARS, & JUJUBES TO ALL PARTS OF THE WORLD.**

SEE PAGE ADVERTISEMENT, JANUARY 15, 1885, No. 110.

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DR. ANDREW WILSON, F.R.S.E., Editor of "Health,"

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"BINGLEY'S GINGER ALE is unsurpassed for delicacy of flavour, and for its high quality. As a substitute for Alcohol, taken along with food, and as a temperance drink, it has in my opinion no rival."

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Specially Prepared for Exportation.

Correspondence Invited.

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Please see that  
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The most Powerful

**INVIGORANT**  
Ever Produced.

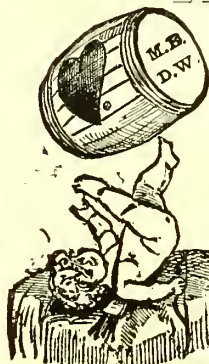
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Imparts Youthful Vigor. Re-  
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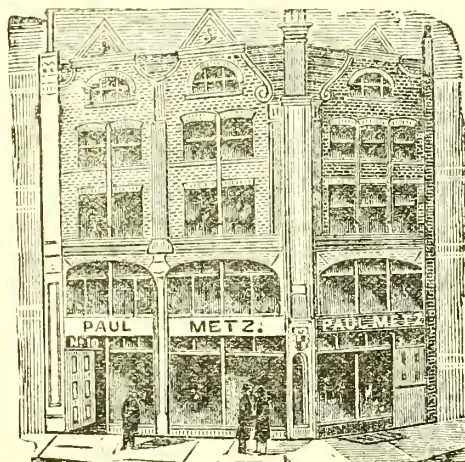
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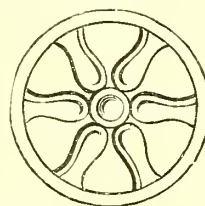
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The lids and bottoms warranted to be well glued in with a Patent Paste that will stand dry or damp weather.

*As I always keep a large stock of the most saleable kinds, all orders can generally be executed at once, without delay.*

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**SUPERIOR GERMAN MUSTARD LEAVES**

*On the back of which Chemists can have their Name and Address printed.*

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**THERMOMETERS, LACTOMETERS, HYDROMETERS, &c,**  
And all kinds of Chemical Glass and Porcelain Apparatus.

"Acme" and XLCR German Polishing Pomatum, &c., &c.

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PRICE LISTS CAN BE HAD ON APPLICATION.



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**LONDON.**

## ADVERTISEMENTS APPEARING IN THIS ISSUE OF "THE CHEMIST AND DRUGGIST."

Please note that to satisfy Post Office requirements the Advertisements are paged twice—  
once in Arabic, once in Roman numerals.

<b>ALLEN &amp; HANBURY'S</b> <i>Effervescent Saline, Wholesale Druggists</i> COVER <b>AI MENTHOL CONES (SHIRLEY, J. G.)</b> 22 <b>ANTOINET FILS</b> 2 <b>APOLLINARIS CO.</b> <i>Freidrichshall, Hunyadi Janos, Waters</i> COVER <b>APOLLINARIS CO. (LIM.)</b> TEXT 110 <b>ASSISTANTS WANTED</b> Coloured Supplement <b>ATKINSON &amp; BARKER</b> Infants' Preservative xiv	<b>GASKELL, DEACON &amp; CO.</b> Bicarbonate of Soda xv <b>GERARD, A.</b> Bruhes and Toilet Specialities 7 <b>GIBBS, J., SMITH &amp; CO.</b> Spirits of Wine 23 <b>GIBSON, R.</b> Lozenges, Sugar, &c. 1 <b>GOODALL, BACKHOUSE &amp; CO.</b> Yorkshire Relish, &c. 10 <b>GOVERNMENT SANITARY CO.</b> Disinfectants 21 <b>GRINDLEY &amp; CO.</b> Petroleum Jelly 3	<b>MISCELLANEOUS ADVERTISEMENTS</b> Coloured Supplement <b>MORGAN CRUCIBLE CO.</b> <i>Portable Furnaces, Crucibles, Porous Pots, &amp;c.</i> 3 <b>MORRIS &amp; CALLARD</b> Acetic Acid, Nalbia, &c. xvi <b>MOUSON &amp; CO.</b> Cocoa Butter Soap 7 <b>MUMFORD, G. S.</b> TEXT 110 <b>MUNDAY, J.</b> "Injection Day" 16 <b>MURRAY, SIR JAN.</b> Fluid Magnesia, Fluid Camphor xviii
<b>BAILEY, W. H. &amp; CO.</b> Drug Mills 23 <b>BARBER, G., &amp; CO.</b> Crinoline Marking Ink 2 <b>BARBER &amp; CO.</b> Concentrated Liquid Cocaine 8 <b>BARCLAY &amp; SONS</b> Proprietary Medicines 5 <b>BARKER, W., &amp; SON</b> TEXT 110 <b>BATES, F. W.</b> Friczeta vii <b>BAUMGARTNER &amp; CO.</b> Metallic Powder 3 <b>BEEDARD, J.</b> Belgravia Tooth Paste 2 <b>BEECHAM, T.</b> Pills 17 <b>BERNSTEIN &amp; VOGHT</b> Wholesale Agents xx <b>BREWLEY &amp; DRAPER (LIM.)</b> Ink Dichroic x <b>BINGLEY, JOHN</b> Ginger Ale 1 <b>BLAKE &amp; MACKENZIE</b> Printing 12 <b>BRACHER &amp; CO.</b> Mixing Machinery 8 <b>BRADLEY &amp; BOURDAS</b> Plate Powder 22 <b>BRAND &amp; CO.</b> Invalids' Foods 11 <b>BRATBY &amp; HINCILLIFFE</b> Aerial Wtr Mchnry 9 <b>BREIDENBACH &amp; CO.</b> Smelling Salts 7 <b>BRITISH COLLEGE OF HEALTH</b> Morrison's Pills 16	<b>HAILEY &amp; CO.</b> Lanoline x <b>HAMILTON &amp; CO.</b> Carbolica 22 <b>HARRIS, H., &amp; CO.</b> Bottles 15 <b>HARROP</b> Linen Glaze 23 <b>HASSALL, THOMAS</b> Bay Salt 2 <b>HEARN, RIDDLE &amp; CO.</b> Glass Bottles 15 <b>HEARN, SQUIRE &amp; FRANCIS</b> Terebene—TEXT 110 <b>HERRINGS &amp; CO.</b> "Herring's Unguentum Paraffinum" 20 <b>HERTZ &amp; COLLINGWOOD</b> Cod Liver Oil ("Iceberg Brand") 13 <b>HEWLETT, C. J., &amp; SON</b> Liquor Santal, Flav. c. Buchu et Cubeba xix <b>HODGE &amp; CO.</b> Improved Truss 8 <b>HOOPER, B., &amp; CO.</b> Compressed Salts and Drugs 13 <b>HOPE BITTERS, THE, CO.</b> Cautions 1x <b>HORMUSJEE, RUTTONJEE &amp; CO.</b> Bombay, Chemists 3 <b>HORN &amp; SON</b> Patent and Trade Mark Agents 3 <b>HOUBIGANT</b> Perfumery vii <b>HOUGHTON &amp; CO.</b> Photographic 1 <b>HOWARDS &amp; SONS</b> Quinine and Pharmaceutical Chemicals xlii	<b>NATIONAL CHEMICAL CO.</b> Chloride of Lime 23 <b>NESTLE, H.</b> Milk Food for Infants 11 <b>NEW CARBOLIC SANITARY CO. (LIM.)</b> Chloride of Lime in packages 3 <b>NEWBERY &amp; SONS</b> Perfumes and Colognes v <b>NOAKES, B., &amp; CO.</b> Metallic Casks, Drums, Kegs, Canisters, Boxes, &c. 20 <b>OLDFIELD, PATTINSON &amp; CO.</b> Drugs, Chemicals, Vegetable Butter Colouring, &c. vi <b>ORRIDGE &amp; CO.</b> Pathe's Coloured Supplement
<b>BRITISH HOP PACKING CO.</b> Hops xx <b>BROOKS, PEEL &amp; CO.</b> Hops xx <b>BRUNNER, MOND &amp; CO.</b> Collapsible Tubes, Sprinklers, Stoppers 6 <b>BURGESS, E.</b> Bicarb. of Soda and Pure Alkali xvii <b>BURGESS, WILLOWS &amp; FRANCIS</b> Wholesale Druggists xviii <b>BURGOYNE, BURBIDGES &amp; CO.</b> Dr. Koch's Meat Peptone, Wholesale Druggists xix <b>BUSINESS FOR DISPOSAL</b> Coloured Supp. <b>BUTTNER, EDWARD</b> Essential Oils xx	<b>INGRAM &amp; ROYLE</b> Importers of Natural Mineral Waters <b>INGRAM &amp; SON</b> Saurbrunnen COVER <b>INGRAM &amp; SON</b> Enemas 24 <b>ISAACS &amp; CO.</b> Bottles 15 <b>JAMES, W. H.</b> Lieut. James' Blisters 22 <b>JEWSBURY &amp; BROWN</b> Sparkling Table Waters xi <b>JOHNSON, J. H., &amp; S.</b> Essential Oil of Mustard 21 <b>JONES, DR. G. H.</b> New Pamphlet 3 <b>JONES &amp; MASON</b> Methylated Spirits 21 <b>JUDSON &amp; SON (LIM.)</b> Specialties 20 <b>" "</b> Glass Filters 9 <b>" "</b> Filtering Medium vi	<b>PARCHMENT, THE, WAX PAPER CO.</b> Oiled War Paper 13 <b>PATENT PLUMBAGO CRUCIBLE CO.</b> 3 <b>PATISON (YOUNG'S)</b> Corn and Bunion Plasters 1 <b>PEACE, J. B.</b> Pitch, Oils, &c. 21 <b>PHILLIPS, G., &amp; CO.</b> Rectified Spirits 23 <b>PHILLIPS &amp; CO. (LIM.)</b> General Merchants 3 <b>PICKERING, J., &amp; SONS</b> Needham's Plating Paste 22 <b>POTHS, H., &amp; CO.</b> Dr. Linck's Malt Extract <b>"Leube-Rosenthal's Meat Solution"</b> Shop Bottles and Jars. xi <b>POWELL &amp; BARSTOW</b> Elastic Gum Bandages 3
<b>CADBURY BROS.</b> Cocoa Essence COVER <b>CAMPBELL, NEIL</b> Ceylon Agencies Wanted 3 <b>CHESEBROUGH MANUFACTURING CO.</b> "White Vaseline" x <b>CHRISTIAN, H. J. (H. BOND)</b> Oak Tree Marking Ink vii <b>COLEMAN &amp; CO.</b> Liebig's Extract of Meat and Malt Wine 10 <b>CROUCH, F. B.</b> Damiana Wafers 1 <b>DALES, J. T.</b> Dublin 21 <b>DAVENPORT, J. T.</b> Chlorodyne (Dr. J. Collis Browne's) xxvii <b>DE NOUVAL, J.</b> Medicinal Capsules 16 <b>DE PASS &amp; CO.</b> Petrolina x <b>DINNEFORD &amp; CO.</b> Fluid Magnesia xvi <b>DODD &amp; CO.</b> Pills 16 <b>DUNN &amp; CO.</b> Acetic Acid and Chemicals xvi <b>DURRANT, GEO., &amp; CO.</b> Orange Wine 2	<b>KAY BROS.</b> Fresh Fruit Essences & Specialties xviii <b>KEMP, W., &amp; SON</b> Honey and Bee-wax 22 <b>KILNER BROS.</b> Bottles 18 <b>KUHN, B.</b> Papain Finkler xiv <b>LEVERMORE, AUG., &amp; CO.</b> Pure Precipitated Chalk 3 <b>LONDON HOMOPATHIC HOSPITAL AND MEDICAL SCHOOL</b> 2 <b>LYNCH &amp; CO.</b> Dispensing Bottles COVER <b>MACNAIR &amp; CO.</b> Spirits, Pure and Methylated 21 <b>MARION &amp; CO.</b> Photography 5 <b>MASON, G., &amp; CO.</b> Essence of Beef 11 <b>MATHER, W. G.</b> Plasters 4 <b>MAUBERT'S SOAPS</b> vii <b>MAW, S., SON &amp; THOMPSON</b> "McK. & R. Pills" 15 <b>MAY &amp; BAKER</b> Sublimed Tablet Camphor COVER <b>MAY, ROBERTS &amp; CO.</b> Seltzogens 9 <b>MAYHEW, ED.</b> Agents Abroad xx <b>METCALF, THEODORE &amp; CO.</b> Agnina 14 <b>METZ, PAUL</b> Pine Willow Boxes ii <b>MEYER &amp; HENCKEL</b> Butter Colouring, Rennet 3	<b>ROBBINS, J., &amp; CO.</b> Methylene xvi <b>ROBERTS &amp; CO.</b> Foreign Chemists 14 <b>ROBINSON, B.</b> Corn and Wart Pencil 1 <b>ROUSE &amp; CO.</b> Matthews' Fuller's Earth 23 <b>SCHACHT, WILLIAM, &amp; CO.</b> Kronenquelle 9 <b>SCHUTZE, J., &amp; CO.</b> Specialties 18 <b>SCHWEPPE &amp; CO.</b> TEXT 110 <b>SEEGER, H.</b> Metal Cleaning Pomatum 3 <b>SHIRLEY, J. G.</b> Al Menthol Cones 22 <b>SILICATED CARBON FILTER CO.</b> Filters viii <b>SMITH, W. F.</b> Pills 16 <b>SPRATT'S PATENT "FIBRINE"</b> &c. 20 <b>STEARNS, FREDK., &amp; CO.</b> Non-Secret Remedies 14 <b>STEPHENSON &amp; THAVIS</b> "Stephen" Antiseptic Dressing xiv <b>STEVENSON &amp; HOWELL</b> Essential Oils, &c. 1 <b>SUTTON, FRANCIS, &amp; CO.</b> Solutions, Chemicals 2 <b>SUTTON, O.</b> OS. Tooth Block 1
<b>ELVIN BROTHERS</b> Oils, Paints, Colours, &c. 22 <b>EVANS, SONS &amp; CO.</b> Hawley's Shilling Capsules 16, xx <b>EVANS, LESCHER &amp; WEBB</b> London 16, xx <b>EVANS, SONS &amp; MASON</b> "Montreal" 16, xx <b>EWEN, J., &amp; SONS</b> Clarified Lard 18 <b>EXCHANGE COLUMN</b> Coloured Supplement <b>FARMILOE, GEO., &amp; SON</b> Glazed Size, &c. 23 <b>FOLLOWS &amp; BATE (LIM.)</b> Machinery 23 <b>FORD, SHAPLAND &amp; CO.</b> Printing, Chemists' Fly Papers 12 <b>FOSTER, F. F.</b> Poultry, Roup Pills 3 <b>FOULKES, W. J.</b> Cement, Toilet Powder 2 <b>FRY, J. S., &amp; SONS</b> Malted Cocoa & Cocoa Extract 11	<b>WALL &amp; CO.</b> Wax Paper 12 <b>WERNER &amp; PFLEIDERER</b> Chemists' Mchnry 8 <b>WESTMINSTER COLLEGE (WILLS &amp; WOOTTON)</b> 2 <b>WHEELER'S GLYCERINE JELLY</b> vii <b>WILTERS, OTTO</b> Balances 2 <b>WYLEYS &amp; CO.</b> Coated Pills, Pharmaceuticals, Wholesale Druggists xvi <b>YOUNG, HENRY</b> Corn and Bunion Plasters 1 <b>ZIMMERMANN &amp; CO.</b> Schering's and Finkelberg's Chemicals—Iodoform, Parvaldehyde xii	<b>THOMPSON, H. ASCOUGH, &amp; SON</b> Wholesale and Export Druggists 13 <b>TOOGOOD, W.</b> New Premises, Glass Bottle Manufacturer 19 <b>TYPKE &amp; KING</b> Acids and Hypophosphites 3 <b>TYRER, P.</b> Ketchup, Sauces, &c. 11 <b>WALL &amp; CO.</b> Wax Paper 12 <b>WERNER &amp; PFLEIDERER</b> Chemists' Mchnry 8 <b>WESTMINSTER COLLEGE (WILLS &amp; WOOTTON)</b> 2 <b>WHEELER'S GLYCERINE JELLY</b> vii <b>WILTERS, OTTO</b> Balances 2 <b>WYLEYS &amp; CO.</b> Coated Pills, Pharmaceuticals, Wholesale Druggists xvi <b>YOUNG, HENRY</b> Corn and Bunion Plasters 1 <b>ZIMMERMANN &amp; CO.</b> Schering's and Finkelberg's Chemicals—Iodoform, Parvaldehyde xii

## CLASSIFIED LIST OF ALL ADVERTISERS

Whose Announcements appear in "THE CHEMIST AND DRUGGIST." Those whose Names do not appear above are published in one of the other issues of this month.

AERATED AND MINERAL WTS AND PLANT	Aerated & Mineral Wts & Plant—cont.	ACETIC ACID	AGENCIES ABROAD	BANDAGES
[See SYPHONS and ESSENCES.] Apollinaris (Hunyadi, Fried- richshall, and Apollinaris) Barnett and Foster Bratby and Hinchliffe British Syphon Co. Bush, W. J., and Co. (Foam Producer, &c.) Chemists' Aerated Waters Association Ellis (Ruthin) Fawcett, H. Gerat and Co. Gueret Freres Harston & Co. Hassall and Co. (Citric Acid, Phospho)	Hooper and Co. (Brighton Seltzer) Ingram and Royle (Mineral and Vichy) Jewsbury and Brown La Bourboule Meadowcroft, W. Mills and Co. (Bourne) Schacht, W., and Co. (Kronen- quelle) Schweppe and Co. Stevenson and Howell Taylor, T. and F. J. Taylor, Hayward, and Co. Vallet, L. (Bottles) Younger and Ridley (Temper- ance Wines)	Dunn and Co. Hirst, Brooke and Hirst. Lindsey, O. R., and Co. <b>ALKALOIDS</b> Howards and Sons (Clachona) Smith, J. and H. <b>AMMONIA</b> May and Baker Hirst, Brooke and Hirst <b>APPARATUS</b> Follows and Bate, Lim. May, Roberts (Water-bath) Morgan Crucible Co. Orme (Scientific) Pat. Plumbago C. Co. Rothermel, Paul (Vinegar) Walters Otto (Balances)	Campbell, Neil S. (Colombo) Cocking (Japan) Davison, A. (delfhia) Eisner and Mendelson (Phila- Evans, Sons and Mason (Canada) Felton (Melbourne) Fougere (New York) Hormusjee Buttanjee (Bombay) Kempthorne (N.Z. Zealand) Lennan (Port Elizabeth) Mayhew, E. (Watr. Australia) Phillips and Co. (Bomby) Prosser, E., and Co. (Sdney) Roberts (Paris, &c.) Roche (Melbourne) Sharland & Co. (Auckland N.Z.) Shirreffs and Co. (Allahabad) Symes and Co. (Simla)	Bailey and Son Bole Hall Mill Co. Gibbs, Cuxson, and Co. Hutchinson, A., and Co. ("Heft- Liverpool Lint Co. band") Powell and Barstow Robinson and Sons Seabury and Johnson <b>BANK</b> Birkbeck Bank <b>BEDS, WATER</b> Hooper and Co. Hutchinson, A., and Co. (Sheet- ing Rubber) <b>BEESSW &amp; HONEY</b> Kemp, W., and Son <b>BATH GLOVES</b> Pattison, G.



**BICARB. SODA**

Brunner, Mond and Co.  
Gaskell, Deacon and Co.  
Howards and Sons  
May and Baker

**BISMUTH PREP.**

Howards and Sons  
May and Baker

**BOOKS**

Dobell, Dr. (Bournemouth)  
James, Dr. Prosser (Guide to  
New B.P.C.)  
Smith, J. G. ("Aërid Wtre")

**BOTTLES**

Ayrton and Saunders  
Barnett and Foster (the  
"Eclipse" stoppered)  
Brooks, Peel (Perfumers)  
De Luca, G. V.  
(Glasgow Apothecaries' Co.  
Harris and Co.  
Hearn, Riddle  
Isaacs, J., and Co.  
Kilner Bros.  
Poths  
Simcock, T.  
Simcock, W.  
Thompson, Millard and Co.  
Toogood (Feeding)  
Vallet

**BOXES**

Arundel (Folding Card)  
Austin and Co. (Cardboard)  
Ayrton and Saunders (Willow)  
Eates' Turned Wood  
Metz, Paul (Pine and Willow)  
Noakes, B., and Co.  
Robinson and Sons (Cardboard)  
Rogers, J., and Co.  
Self-Opening Tin Box Co.  
Thompson Norris Manfg. Co.

**BROMIDIA**

Battle and Co.

**BRUSHES**

Ashworth (Metallic)  
Dukes and Co.  
Gérard, A. (Toilet)  
Lynch and Co. (Electric)  
Titterton & Howard

**BUTTER COLOUR**

Bunson, Benson and Co.  
Bush, W., Son, and Co. (Mari-  
colidine)  
Meyer and Henckel  
Oldfield, Pattinson and Co.

**CAMPHOR**

Howards and Sons (pathic)  
Keene and Ashwell (Homœo-  
May and Baker  
Murray, Sir James (Fluid)

**CAPSULES**

Bette and Co. (Metallic)  
Chevalier (Solubles)  
Denoual, J. (Medicinal)  
Hooper, H., and Co.

**CARMINE**

Sellers

**CATALOGUES**

Bourne, Johnson, and Latimer  
Newbery and Sons  
Quarterly Price Current (Maw's)

**CEMENT**

Foulkes  
Kay (Coaguline)

**CHALK PRECIP.**

Dunn and Co.  
Levermore and Co.

**CHEMICALS**

Bramwell, E., and Son  
Brunner, Mond and Co. (Bicar-  
bonate of Soda)  
Bush, W., and Co.  
Dunn and Co.  
Gaskell, Deacon and Co. (Bi-  
carbonate of Soda)  
Howards and Sons (Pharma-  
ceutical)  
May and Baker  
Oldfield, Pattinson and Co.  
Smith, T., and H.  
Sumner, R., and Co.  
Sutton and Co. (Volumetric  
Analysis)  
Type and King  
Walker, Troke and Co.  
Zimmermann, A. and M.

**CHLOROFORM, &c.**

Duncan, Flockhart  
Macfarlan, J. F.  
Smith, T., and H.  
Zimmermann

**CHLORODYNE**

Bage, T., Blyton, and Co.  
Davenport (Browne's)  
Freeman  
Towle, A. P.

**COCAINE**

Howards and Sons

**COCOA & CHOCOLTE**

Cadbury Bros.  
Fry (Malted)  
Richards, J. M. (Deiacre's)

**COFFEE**

George and Welch (Dandelion)  
Symington (Various Essences)

**CORRUPTD PAPER**

Thompson Norris Manufg. Co.

**COD-LIVER OIL**

Allen and Hanburys  
Beiss Bros.  
Reesley, J. E., and Sons (Iodized)  
Hooper, B., and Co.  
Jensen's "Iceberg Brand"  
Smith, T. J.  
Southall Bros. and Barclay (Al)

**CMPRSSD MDCNS**

Drysdale and Co. (Leo's Chlo-  
Potash)  
Hooper, B., and Co.  
Newbery, F., and Sons

**CORN CURES**

Chave and Jackson (Celandine)  
Harvey's Pencils (Hockin,  
Wilson and Co.)  
Robinson, B.  
Young's

**CRUCIBLES**

Morgan Crucible Co.  
Pat. Plumbago Co.

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Spratts (Patent) ("Fibrine")

**DENTIFRICES**

Beddard, J.  
Jewsbury and Brown  
Martin, J. W. (Rozallum)  
Rimmel  
Sutton, O., and Co.  
Thompson and Capper  
Woods, W. (Arceca Nut)

**DENTISTRY**

Buck, F. (Leesons)  
Jones, Dr. C. H. (Mechanical)

**DISINFECTANTS**

Elvin Bros.  
Dinsdale, J. T.  
Government Sanitary Co.  
Harrison and Co. (Hydroleline)  
Hamilton and Co. (Carbolica)  
National Chemical Co.  
New Carbolic Sanitary Co.  
Rimmel  
Sanitas  
Steele & Co. (Chloride of Lime)  
Voigt, G.  
Wyleys and Co. (Pure Terebene)

**DRUGGISTS' SUN.**

Ayrton and Saunders  
Beiss Bros.  
Bourne, Johnson  
Evans, Lescher and Webb  
Hockin, Wilson and Co.  
Lairitz (Pine Wool)  
Lynch and Co.  
Maw, S., Son and Thompson  
May, Roberts and Co.  
Newbery, F., and Sons  
Schutze and Co.  
Simcock, W.  
Thompson, Millard  
Toogood

**DRUG MILLS**

Bailey & Co.  
Follows and Bate ((Entrps.)  
Werner and Pfeiderer

**DUBBIN**

Dales, J. T.  
Jamieson and Co.

**DUTCH MEDCNS.**

Bieber, J. D.

**DYES**

Ayrton and Saunders  
EAU DE COLOGNE  
Farina, J. M. (Gegenüber)  
ELECTRIC APPAR  
Darton, F., and Co.  
Orme and Co.

**ENEMAS**

Ingram and Son  
Lynch and Co.  
Schutze and Co.

**ENGRAVERS**

Barker, W., and Son

**ESSENTIAL OILS**

Bush, W., Son and Co. (Imprs.)  
Bush, W. J. (Lemons, &c.)  
Clay, Dod & Co.  
Cocking (Japan Peppermint)  
Jackson, J., & Co. (Peppermint, &c.)  
May and Baker  
Rocke, Tompitt (Eucalyptus)  
Stallman and Fulton  
Stevenson and Howell  
Todd (Am. Peppermint)  
Voigt, G.  
Wright, Layman and Umney

**ESSENCES, FRUIT**

Bush, W. J., and Co.  
Hay's Soluble Lemon, &c.  
Jensen, J., and Co.  
May and Baker  
Meadowcroft, W.  
Radlaue's Ess. of Pines  
Stevenson and Howell  
Sumner and Co. (Ginger Ale)  
Sutton, Francis and Co. (Stan-  
dard Solutions)  
Type and King (Pear and  
Pineapple)

**ETHER**

Duncan, Flockhart and Co.  
Howards and Sons ((Chloric)  
May and Baker  
Robbins

**FORMULE**

Brooks, T.

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Brand and Co.  
Burgoyne, Burdidges and Co.  
(Dr. Kochs)  
Coleman & Co.  
Edge Bros., Lim.  
Hugo, Brown and Co.  
Liebig Co.  
Mason, Geo., and Co.  
Poths (Leube Rosenthal)

**EXTRACTS, FLUID**

Beiss Bros.  
Barber, G., and Co.  
Burgoyne, Burdidges  
Harker, Stag  
Howards & Sons  
Stearns, F., and Co.  
Thompson, Henry Ayscough,  
and Son

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Chubb, J., and Co. (Violet)  
Foulkes

**FEEDING BOTTS.**

Bourne, Johnson and Co.  
Hearn, Riddell and Co.  
Kilner Bros.  
Lang, J., and J.  
May, Roberts, and Co.  
Richards, Charles (Tube  
Cleaner)

**FILTERING**

Doulton and Co.  
Judson, D., and Son  
Maignen (Filtre Rapide)  
Mawson and Swan  
Schwenkner, E., and Co. (Paper)  
Silicated Crbn Filt. Co.  
The Chamberland-Pasteur  
Filter

**FOOD, INFANTS'**

Clarke, S. (Food Warmers)  
Jensen (Peptone)  
Nestlé, H.  
Savory and Moore (Pancreatic)  
" (Peptonised Milk)  
Southall Bros. and Barclay  
(Prepared Malt)  
Van Abbott (Diabetic)

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Chubb, J., and Co.  
Hynam, J.  
Rouse and Co.

**FUNNELS**

Lynch and Co.

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Kimmond  
Mills, R. M.  
Ross and Co.  
Schweppé (Dry)  
Sumner, R., and Co.

**GINGER - BEER****POWDERS**

Cavell, J.  
Kemp and Son

**GLYCERINE**

Fink  
Price's Candle Co.

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Bishop, A.  
Bush, W., and Co.  
Goodall, Backhouse and Co.  
Harker, Stag and Moss  
Stearns, F., and Co.

**GRINDING MCHNS**

Bracher and Co.  
Follows and Bate  
Werner and Pfeiderer

**GUMS**

Fink (Arabic, &c.)

**GUTTAPERCHA**

Duncan, Flockhart  
Stevens, P. A. (White)

**HAIR PREP.**

Ayrton and Saunders  
Bates, T. W. (Frizzetta)  
Cheesebrough Mfg. Co.  
James and Co. (Herbl. Pom.)  
Rimmel  
Sturrock's Oleagins  
Comarine  
Towle Toilet Cream (Thorn-  
ton's)

**HARNES POLISH**

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Butler, McCulloch  
Potter and Clarke

**HOMOEOPATHIC**

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Eppe, James, and Co.  
Gilbert, W.  
Gould, E., and Son  
Keene and Ashwell  
Leath and Ross  
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**HOPS**

British Hop Packing Co.

**HOSPITALS**

London Homoeopathic

**ICE**

Barnett and Foster

**INK**

[See MARKING.]

Antoine  
Bewley and Draper  
Clarke, J. T.  
Duncan, Flockhart  
Jamieson and Co.

**INSECTICIDES**

Ford, Shapland & Co. (Fly Papers)  
Galzy, E.  
Judson and Son, Lim.  
Maw, S., Son, & Thompson  
(Insecticide-Vicat)  
Radlaue (Moth Paper)  
Sandford  
Sumner, R., and Co.  
Vogt, G.  
Woolley & Son (Dalmatian pdr)

**KETCHUP**

Tyner, P.

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Bowers Bros.  
Ford, Shapland and Co.  
Townsend (Exeter)

**LANOLINE**

Haller and Co.

**LARD**

Ewen, J.

**LEATHER**

Shaw, Alexander and John

**LEECHES**

Butler, McCulloch  
Fitch and Nottingham  
Potter and Clark

**LICORICE**

Craven, M. A., and Son

**LIME JUICE**

Felton and Sons (Specialité)  
Fleming and Nottingham  
Riddle and Co. (Stowers)  
Ross and Co.

**LINSEED**

Kemp, W., and Sons  
Mumford

**LINT**

Liverpool Lint Co.  
Newsome (Surgeons)  
Robinson and Sons  
Seabury and Johnson

**LOOFARS**

Lynch and Co.  
Maw, Son and Thompson  
Toogood

**LOZENGES**

Blyton, T. Bage, and Co. (Me-  
dicated)  
Craven, M. A., and Son  
Gibson, R. (Manufacturer)  
Kanold's Aperient

**MAGNESIA**

Dinneford (Fluid)  
Murray, Sir James (Fluid)  
Southall Bros. (Liquor)

**MALT EXT., ETC.**

Poths (Dr. Linc's)

**MARKING INKS**

Barber, G., and Co. (Crimson)  
Christian, J.  
Clarke, J. T.  
Murphy, J.

**MATERIA****MEDICA CABINTS**

Evans, Sons and Co.  
Evans, Lescher and Webb

**MENTHOL**

A 1 Menthol Depot, J. G.  
Shirley, Proprietor  
Boehm, J. (Charme)  
Christy and Co. (Cones)  
Cocking and Co.  
Hockin, Wilson & Co.  
Metz, P. ("Acme" cones)  
Todd, A. M.

**MERCURIALS**

Dundas, Dick & Co.  
Maw, S., Son and Thompson

**METALLIC CASES,****DRUMS, & KEGS**

Noakes, B., and Co.

**METHYLATED****SPIRITS**

Burrough, J.  
Gibb, I., Smith and Co.  
Harvey, J., and W.  
McNair and Co.  
Phillips G., and Co.

**MILING**

Bracher and Co.  
Follows and Bate  
Sherwin, G. E.  
Werner and Pfeiderer

**MORPHIA**

Macfarlan and Co.  
Smith, T., and H.  
Wink, J. A., and Co.

**MUSE**

Fynes and Co. (Thibet)

**MUSTARD**

Finch, Rickman  
Johnson, J. H. and S. (Ess. Oil)

**MUSTARD LEAVS.**

Metz, Paul

**NIGHT LIGHTS**

Clarke, S.

**OILS, PAINTS, &c.**

Binghamton Oil Refining Co.  
Elvin Bros.  
Farallo, Geo., and Sons  
Follows and Bate (Mill)  
Holt, A., and Co.  
Joyce, S. C., & Co. (Petroleum, &c.)  
Peace, J. R., and Co.

**OINTMENT BASES**

Boehm, G. S. (Petroleum Jelly)  
Cheesebrough (Vaseline)  
De Pass, E. A., & Co. (Petrolina)  
Evans, Sons & Co. (Fossiline)  
Grindley (Petroleum Jelly)  
Haller and Co. (Lanoline)  
Metcalfe & Co. (Pure Wool Fat)  
Saunders, C.

**PAPAIN**

Christy, T., and Co. (Papaine-  
Christy)

Kühn, B. (Papain-Finkler)

**PAPER (Sanitary)**

Mason & Co. (Waxed & Oiled)  
Sanitary Paper Co.

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**PATENT MEDCNS**

Atkinson (Infant Preserv)  
Barclay and Sons (General)  
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British College (Morrison's)  
Burgess, E. (Lion Ointment)  
Davenport (Chlorodyne)  
Edwards and Sons  
Fennings' (Powders)  
Freeman, R. (Chlorodyne)  
George and Welch (Liver)  
Henry's Indian Remedies  
Holloway (Pills and Oint.)  
Hop Bitters  
Horsford (Acid Phosphate)  
Kay Bros.

King, Alf. (Hop Bitters)

Lairitz's Pine Wool

Lalor (Phosphodyne, &c.)

Lincoln (Clarke's Mix.)

Leary, E. B. (Kof Kur)

Munday, J. (Injection Day)

Newbery and Sons

Richard, J. M. (American, &c.)

Roberts (Foreign)

Sanger and Sons

St. Dalme (Bronchial, &c.)

Smith (Antibillous Pills)

Spratts (Locum Oil)

Stearns' Non-secret

Stedman (Fishing Powders)

Sumner and Co. (Angel's Food)

Thompson, Millard and Co.

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Gillott

**PERFUMERY, &c.**

[See EAU DE COLOGNE.]

Barclay and Sons

Boehm Gustav (Various)

Bridenbach, Smelling Salts

(inexhaustible)

Cheesebrough Manufacturing Co.

De Pass & Co. (Fch. Blam. Sp.)

Ewen (Soaps)

Houbigant (Perfume)

Jackson, J., and Co. (Lavender)

Mann, C. A.



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Allen and Hanburys  
Baies Bros.  
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Bottle and Co. (Bromidia)  
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Chevalier, F. (Solubles)  
Clay, Dod and Co.  
Duncan, Flockhart  
Fellows (Hypophosphites)  
Fletcher, Fletcher, and Stevenson  
Gibson, R. (Lozenges)  
Harker, Stagg (Various)  
Hewlett and Sons  
Hirst, Brooke and Hirst  
Howards and Sons  
Kay Bros.  
Keith (Conc. Tinctures)  
Martindale (Nitroglycerine)  
Stearns (Non-secret)  
Wink, J. A., and Co.  
Woolley, Sons  
Wright, Layman and Umney  
Wyleys (Various)

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Thomas, R. W., and Co.  
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Spong  
**PITCH**  
Elvin Bros. (Tar)  
Peace, J. R., and Co.

**PLASTERS**

Gibbs, Cuxon and Co.  
Mather, W.  
St. Dalmas, A. De  
Seabury and Johnson  
Taylor, E.  
The Pelig White Proprietary Co.

**PODOPHYLLIN, &c.**

Keith, B., and Co.  
Smith, T. and H.

**POLISHING**

Baumgartner (La Brillantine)  
Bradley, Bourdas (Albatum)  
Oakley, John, and Sons  
Pickering and Sons  
Seeger, H. (Pomatum)

**PORCELAIN GDS**

Bentley (Opal Glass)  
Boths, H., and Co.  
Toogood (C.C. Pots, regist)

**PORTBLE FURNCS**

Morgan Crucible Co., The  
**PRINTING**  
Blake and Mc Kenzie  
Ford, Shapland and Co.  
Townsend, J.

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Howards and Sons  
Zimmermann

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Hutchinson, A., and Co.

**SALICINE**

Macfarlan and Co.

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Allen and Hanburys  
Evans, Lescher and Webb  
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Harker, Stagg and Moss

**SALT**

Hassall, Thos. (Bay)

**SANTONINE**

Bieber, J. D.

**SAUCES**

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Lazenby (Harvey's)  
Tyr

**SCHOOLS**

Central School  
Edinburgh Classes  
Liverpool School  
London Homeopathic  
Manchester College  
South London School  
The School of Pharmacy  
Tully, J.  
Westminster College

**SEALING WAX**

Waterston and Sons

**SEIDLITZ PWDRS.**

Chubb, J., and Co.  
Stedman

**SELTZOGENES**

British Syphon Mfg Co.  
Durafort  
Gerant and Co.  
Gueret Freres  
May, Roberts

**SHOP FITTERS**

Bygrave, J. and W.  
Curtis, J., and Son  
Howlett, S.  
Lemaitre, W., and Co.  
Tomlinson and Sons  
Treble, G., and Son  
Vates, W. S.

**SHAVING**

Hovenden (Euxesia)  
Lloyd, A. S. (Euxesia)

**SHEEP DIP**

Biggs, T.  
Grindley

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Chlewick Soap Co.  
Moulson and Co. (Cocoa Butter)  
Maulett's Genuine Brown Windsor

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Darton, F., and Co.  
Scott, J. A., and Co.

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Burrough (Pure & Methyl.)  
Gibbs, Smith and Co.  
Harvey, J. W., and Co.  
Jones and Mason (Methyl.)  
Macnair, A. (Pure)  
Phillips, G., and Co. (Pure)

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Cresswell & Co.  
Dukas and Co.  
Lynch and Co.  
Peterson, M.  
Schutze and Co. (Bags)

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Lindner, M.  
London Rubber

**SURGICAL**

Ayrton and Saunders  
Bailey, W. H., and Son  
Colwell, H. M., & Co.  
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Haywood, J. S.  
Hodge and Co.  
Hooper and Co. (Water Beds)  
Jensen, C., and Co. (Pallias Syringe)  
Lynch and Co.  
Manson and Schramm (Elastic Gum)  
Marke, A. A. (Artificial Limbs)  
May, Son and Thompson  
Powell and Baretow (Elastic Gum Instruments)  
Schutze, F., and Co.  
Scott, W. A. (Instrnts, etc.)  
Seabury and Johnson (Tissues)  
Stephenson and Travis  
Thompson, Millard

**STARCH**

Critchley (Gloss)  
Harrop's Glaze

**STOPPERS**

Austin and Co. (Sprinklers)  
Brooks, Peel (Sprinklers)  
Vallet

**SUGAR**

Gibson, R.

**SYPHONS**

Barnett and Foster  
British Syphon Co.  
Durafort  
Gerant and Co.  
Gueret Freres  
Lang, J. and J.  
Southall Bros. (Lime Water)

**SYRUPS**

Stevenson and Howell (American Foam)

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Brook, Bond and Co.  
Pearse and Wheatley  
Spinner and Co.  
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Walker and Dalrymple

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Hooper, B., and Co.  
Howards and Sons

**THERMOMETERS**

Cetti, E.  
Darton, F., and Co.  
Immisch's (Patent Metallic)

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Burroughs, Wellcome and Co  
Follows and Bate

**TOBACCO**

Corry, Soper, Fowler and Co. (Juice)  
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Horn and Son

**TRUSSES**

Ayrton and Saunders  
Bailey, W. H., and Son  
Colwell  
Haywood, J. H.  
Hodge and Co.  
Lindsey  
Lynch and Co.

**URETHANE**

Howards and Sons

**VACCINATION**

Association for the supply of

**VALUERS**

Orridge and Co.

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Chesebrough (Vaseline, &c.)  
Corner, R. (Devonshire Oils)  
Day, Son and Hewitt  
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James, R. J. (Bilster)  
Spong and Son (Pig Powders)  
Spratts (Dogs)  
Taylor, Thomas

**VERMIN KILLERS**

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Judson and Son  
Rowland Ward and Co.  
Sanford and Son  
Steiner and Co.

**VINEGAR**

Grimble and Co. (Pure)  
Rothemel (Making)

**WAXED PAPER**

Waxed Paper Co. (Parchment)  
Wall, G. C.

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Allen and Hanburys  
Baiss Brothers and Co.  
Barrow, Squire and Co.  
Bieber, J. D. (Hamburg)  
Burgess, Willows  
Burgoyne, Burbridge and Bush, W., Son and Co.  
Clay, Dod and Co.  
Evans, Lescher and Webb  
Evans, Sons and Co.  
Evans, Sons and Mason  
Hearon, Squire  
Hewlett and Sons  
Potter & Clarke (Amren. &c.)  
Southall Bros. and Barclay  
Stevenson and Howell  
Summer, R., and Co.  
Thompson, Henry Ayscough and Son  
Thompson, Millard  
Tytkie and King  
Walker, Troke and Co.  
Woolley, Jas., Sons and Co.  
Wyleys and Co.

**WINES AND SPTS.**

Burroughs, Jas.  
Coleman and Co. (Wine)  
Ingram and Royle  
Macnair, A., and Co.  
Metcalfe, Theo. ("Coca Wine")  
Robinson, B. (Orange)  
Younger and Ridley ("Temperance")

**NEWBERRY'S NEW CATALOGUE (for 1886)**

Of Patent Medicines, &c., Druggists' Sundries, &c., &c.,  
TO BE HAD ON APPLICATION.

SPECIAL DEPOT FOR—CUTICURA REMEDIES, now selling rapidly;  
WARNER'S SUGAR COATED PILLS, &c., &c.

SPECIMENS OF PERFUMES IN SHOW BOTTLES. (For other kinds see Catalogue.)



20 oz., 11/6.

20 oz., 11/6.

40 oz., 11/6.

40 oz., 11/6.

20 oz., 13/.

20 oz., 11/6.

LLOOFAHS  
SPONGES

FLESH GLOVES  
SMELLING SALTS

MENTHOL  
COMBS

HAIR BRUSHES  
SPONGE BAGS

And Novelties  
of all kinds.

**F. NEWBERRY & SONS, 1 KING EDWARD ST., LONDON.**

(ESTABLISHED A.D. 1746.)



# WHY SELL OBSOLETE GOODS ?

The old styles of Filters were very good in their time, but the discovery of JUDSON'S Filtering Medium, to take the place of the "WORSE THAN USELESS" Charcoal, has entirely put them out of the question for Domestic use.

## JUDSON'S FILTERS AND FILTERING MEDIUM,

THE ONLY Filtering Medium that really Purifies Water, removing Impurities both in **SOLUTION** and Suspension.

Judson's "Galvano-Electric" Filtering Medium is used in all their Filters, and is **WARRANTED** NOT to contain Animal Charcoal or other deleterious matters.

WRITE FOR ILLUSTRATED CATALOGUE

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## DRUGS, CHEMICALS, PHARMACEUTICAL PREPARATIONS.

### SPECIALITIES :

Concentrated Infusions  
Fluid Extracts

Inspissated Juices  
Concentrated Liquors  
Solid Extracts

Decoctions  
Composition Effence  
Botanic Extracts

Vegetable Colours  
Fruit Effences

Soluble Effences of Lemon, Orange, Ginger, &c., &c., for the Aërated Water Trade.

IMPERIAL BOUQUET, a very choice and lasting perfume, price 8s. 6d. per lb. ; 8s. in Wr. Qts.

## Vegetable Butter Colouring

(AS DANISH).

This preparation is superfeeding Annatto, Carrots, and all other colorants, and where once tried is always used.

### PRICES—

Bulk, 1s. 2d. per lb., 5 per cent. discount. ; Bottles, 4s., 8s., 16s. per dozen, 10 per cent. discount.

SPECIAL QUOTATIONS TO LARGE BUYERS.

## OLDFIELD, PATTINSON & COMPY.,

Wholesale Druggists & Manufacturing Chemists,

## 17 TODD STREET, MANCHESTER.



Established near Three-Quarters of a Century.]

[Registered Trade Mark, an OAK TREE.

# HENRY BOND'S ORIGINAL INDELIBLE "OAK TREE" MARKING INK,

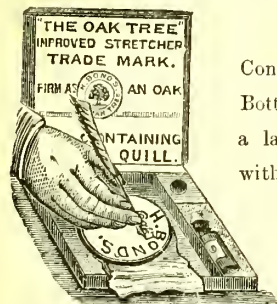
WARRANTED TO REMAIN FLUID IN ALL CLIMATES,

Prepared only by J. CHRISTIAN, Sole Proprietor.

A thorough **GENUINE** and reliable **JET BLACK INK**, which in the simple method of its application, durability, and being impossible to injure the finest Fabric, surpasses every other preparation used for the same purpose. Can be used with or without the application of heat; put up in all convenient forms, for **EXPORT AND COUNTER TRADE**.

**6d.** and **1s.** in Blue Wrapper, Red Trade Mark, boxed or carded in 1 dozen. **6d.** and **1s.** Pedestals, with Stretcher, in 1/2-dozen and 1 dozen boxes. 1/2-oz. and 1-oz. Stoppered Bottles in boxwood boxes, for the use of Large Establishments, Retail, **2s. 6d.** and **5s.** Each Bottle well filled and securely corked and Warranted **NOT TO DRY UP IN THE BOTTLE**.

Complete Illustrated Price List on application. Write for Handsome Show-card, Handbills, and Specimen on Linen. Liberal Discounts to Shippers and the Trade.



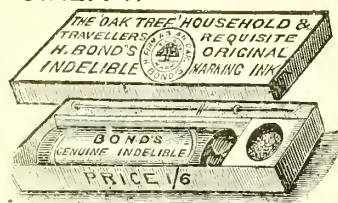
## SPECIALITY.

Consisting of a Large Glass Stoppered Bottle of **BOND'S GENUINE INK**, a large Improved Stretcher covered with Wash-leather, and two hand-cut Quill Pens.

To Retail at 1s. 6d. each.

## SPECIALITY.

Consisting of a Large Patent Stoppered Bottle of **BOND'S GENUINE INK**, and one of Scofield's Marking Pens, for Marking the most difficult Fabrics, both secured in handsome box.



Directions for use in English, French, German, and Spanish.

To Retail at 1s. 6d. each.

Packed for the Trade in handsome Counter Boxes, containing 1/2-dozen.

IMPORTERS and the **TRADE** are respectfully **CAUTIONED** against **SPURIOUS IMITATIONS**. The **ORIGINAL** and **GENUINE H. BOND'S INDELIBLE MARKING INK** bears the Trade Mark, an **OAK TREE**, and the name "**CHRISTIAN**" on each Wrapper and Box. Two Injunctions have been granted, **HENRY BOND'S** Legal Successor restraining the use of the name "**H. BOND'S MARKING INK**," one as recently as the 17th of November, 1882.

To be obtained through all the leading Wholesale Chemists and Druggists in England.

Only Address, **J. CHRISTIAN, 46 City Road (near Finsbury Square), LONDON.**

## TRADE NOTICE.

**WHEELER'S GLYCERINE JELLY** is **NOT LIABLE** to Patent Medicine Stamp Duty. Any stock held bearing labels issued prior to 1st of January last may be **EXCHANGED** on returning it to the Wholesale House it was obtained from, or direct from **143 HACKNEY ROAD, LONDON, E.**

Please observe the new label now in use is identical with the old, minus two words—

**"BROKEN CHILBLAINS."**

This Unique Preparation has the extraordinary property of keeping the

## HAIR IN CURL.

Now used by Ladies in all parts of the World.

Needs but an introduction to command a ready and constant sale.

**FRIZZETTA**  
(REGISTERED.)  
RETAIL 1/6.

Supplied by all London Pat. Medicine Houses, Handsome Show-cards, Glass Tablets, and Circulars profusely supplied. Foreign and Colonial Chemists should write for Terms, &c.

**F. W. BATES, CHEMIST,**  
**BROOKS'S BAR, MANCHESTER.**

## HOUBIGANT,

Perfumer to H.M. the Queen of England,  
19 RUE DU FAUBOURG ST. HONORE,  
PARIS.

Manufactory of the Finest Perfumery.

Toilet Waters, Eau de Cologne, Essences for the Handkerchief, Toilet Soaps, Rice Powders, Cosmetics.

PRICES CURRENT AND CATALOGUES ON DEMAND.



## MAUBERT'S



**GENUINE BROWN WINDSOR & HONEY SOAPS**

ARE THE BEST AND MOST ECONOMICAL.

## ALTHAEA

A NEW SOAP ALREADY IN GREAT DEMAND ON THE CONTINENT, PACKED IN

**ELEGANT GLOVE or HANDKERCHIEF BOXES,** CONTAINING

12 TABLETS, weighing each about 5 oz., price 3/0 per box.  
6 TABLETS, " " " price 1/9 per box.

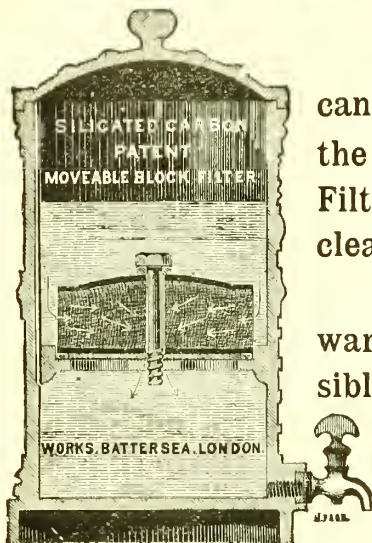
WHOLESALE PRICES ON APPLICATION TO

**6 LOVE LANE, ALDERMANBURY, E.C.**



# SILICATED CARBON PATENT MOVABLE BLOCK FILTERS.

LIBERAL DISCOUNT TO THE TRADE.



(Section.)

Domestic Filters (as above), in Cream-coloured Stone-ware, with Plated Taps and Patent Movable Blocks:—

No. 27.	O. $\frac{1}{2}$ gal. 10/6 each.	D. 6 gals. 42/- each.
	A. 1 " 14/6 "	E. 8 " 52/- "
	B. 2 " 21/- "	F. 12 " 70/- "
	C. 4 " 32/- "	

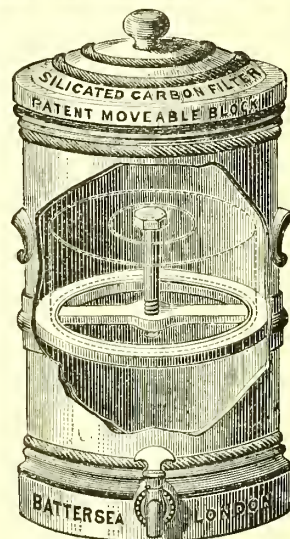


Tap.

The Silicated Carbon Block can be instantly removed, leaving the whole of the interior of the Filter OPEN for inspection and cleansing.

The working parts are stone-ware, and no corrosion is possible.

No loose Pan or inner vessel to cause breakage.



(Elevation with Block removed.)

Dining Room Filters, in Marbled China, with Plated Taps and Patent Movable Blocks:—

No. 22.	A. 2 gals. 35/- each
	B. 5 " 80/- "

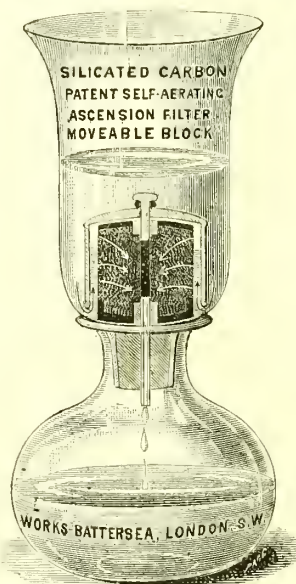
Refrigerative Terra Cotta, do. do. :—

No. 25.	2 gals. 31/6 "
---------	----------------

LIBERAL DISCOUNT TO THE TRADE.

## THE NEWEST AND MOST EFFICIENT TABLE FILTER.

The water ascends in the direction indicated by the arrows, and each time the top glass is filled the air under the porcelain cover is forced through the Silicated Carbon Block, which is thus automatically aerated.



By simply removing the glass peg the Silicated Carbon Block is at once released for cleansing or renewal.

The Carbon Blocks are efficiently cleansed by boiling, and extra blocks can be supplied with each Filter when desired.

No. 38.

### PLAIN GLASS.

No. O—1 Pint	...	...	2/6 each.
" A—2 "	...	...	4/- "
" B—3 "	...	...	5/6 "

No. 38.

### ENGRAVED GLASS.

No. O—1 Pint	...	...	3/6 each.
" A—2 "	...	...	5/6 "
" B—3 "	...	...	7/6 "

FOR FULL ILLUSTRATED LISTS WRITE TO THE

**SILICATED CARBON FILTER COMPANY,**  
CHURCH ROAD, BATTERSEA, LONDON, S.W.



In the High Court of Justice, London, June 4th, 1886.  
*Before Mr. Justice North.*

THE HOP BITTERS Co. v. H. PRATT, CHEMIST, YORK.

THE HOP BITTERS Co. v. W. PLATT, CHEMIST, MATLOCK BATH.

*In these Actions the Plaintiffs, who carry on business at 41 Farringdon Road, London, and known as the Hop Bitters Co., sought to restrain the Defendants from infringing their trade-mark of "Hop Bitters." Mr. Aston, Q.C., and Mr. Theodore Dodd (instructed by Messrs. Seeley & Son) appeared for the Plaintiffs. The former, in opening the case, said this application was made on behalf of the Hop Bitters Co. in respect to their well-known Hop Bitters, and he now moved for an Injunction "to restrain the Defendants" from infringing the Plaintiffs' trade-mark and vending imitations until the trial of these Actions. Mr. Bardswell, on behalf of the Defendants, elected that the motions be treated as the trial of the Actions.*

*The Judge immediately granted the Hop Bitters Co. a perpetual Injunction against both Defendants, and that they be condemned to pay the whole of the costs.*

**CAUTION.**—*We direct attention to the Actions reported above, and have fully determined to ferret out all infringements of our rights and (without further notice) treat them in a like manner.*

*If any person vending an imitation of "Hop Bitters" is in doubt as to whether he is infringing the trade-mark and rights of the Hop Bitters Co., he has only to ask himself whether he ever put up and sold any form of so-called Hop Bitters of his own manufacture till we had created a demand and popularised Hop Bitters at an enormous expenditure of money.*

*We know what the answer must be to this question. We shall protect our rights to the fullest extent, and prosecute every person, be they whom they may, who attempts to trade on the reputation and popularity of Hop Bitters, by putting up imitations of any description whatever.*

HOP BITTERS CO.

ROCHESTER, N.Y., U.S.A.  
LONDON, ENGLAND.  
TORONTO, CANADA.

ANTWERP, BELGIUM.  
PARIS, FRANCE.  
MELBOURNE, AUSTRALIA.



WE ARE NOW ADVERTISING EXTENSIVELY

PETROLEUM **"WHITE VASELINE"** JELLY.

In Collapsible Tubes, 8d. ...	5/ per dozen.	Ditto, Perfumed, 9d. ...	6/ per dozen.
„ 2-oz. Bottles, 1/ ...	8/ „	„ „ 1 ...	8 6 „
„ 5-oz. „ 2/ ...	15/ „	„ „ 2/ ...	16/ „

The Bottles are put up in Cardboard Cases, the same as "Vaseline" No. 1 and No. 2 sizes.

Also **"VASELINE OIL"** (Perfumed) for the Hair, 1s. bots., 8s. per doz.

**CHESEBROUGH MANUFACTURING CO.,** 41 Holborn Viaduct, LONDON, E.C.,  
Proprietors and Sole Manufacturers of the **"VASELINE"** Preparations.

**DRAPER'S INK (DICHROIC)**

THE NEW BLACK INK, different from anything else ever produced.

Writing becomes a pleasure when this Ink is used. It has been adopted by the principal Banks, Public Offices, and Railway Companies throughout Ireland.

It writes almost instantly full black.

Does not corrode Steel Pens.

Dries rapidly on the Paper.

Is cleanly to use, and not liable to blot.

Flows easily from the Pen.

Blotting-paper may be applied at the moment of writing.

In Jars, 6d., 1s., and 2s. each.

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See "CHEMIST AND DRUGGIST," December 15th, 1874.

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## The Week.

TRADE is believed to be reviving, and we invite all firms having suitable goods for sale to the drug trade to advertise them in our issue of next Saturday, July 31, which will be circulated to all the best druggists in the United Kingdom, and in all parts of Greater Britain and the British possessions where druggists are to be found. The Australasian Colonies, India, Canada, South Africa, and the West Indies will be specially canvassed, and our list of foreign importers of British goods will be fully used. Application for space must be made at once. Wednesday next is the latest day for general business advertisements.

By our new arrangements advertisements of employers wanting assistants, assistants wanting situations, businesses for disposal and wanted, sales by auction, &c., will be inserted in our special supplement of the current week if received at the office before 5 P.M. on Thursday afternoons or by the first post on Friday mornings.

THIS week we complete the interesting history of the alkali trade which formed the address to the Society of Chemical Industry delivered by Mr. E. K. Muspratt, as its president, at Liverpool last week. The record given by Mr. Muspratt is a very valuable one, as it comprises details which could only be obtained from long practical association with the manufacture.

AT the Pharmaceutical Examinations in London, which concluded on Wednesday last, sixteen Major candidates and sixty-five Minors were successful; and at Edinburgh, where the examinations were finished on the same date, there were

one successful Major and twenty-nine successful Minor candidates. We give the names on another page.

THERE was very little improvement manifest in the drug markets at the sales on Thursday last. Notable among the goods offered were a series of parcels of excellent eclectic American drugs, but no offer for these was forthcoming.

OUR New York cablegram reports that guarana and saffras oil are in stronger demand and advancing in price, and that drought seems likely to affect injuriously the crop of peppermint oil and cause it to be higher. Mitcham growers of peppermint tell us they are anticipating a "medium" crop.

CASTOR OIL is finding its way to Hull again after neglecting that port for thirty-four years. Liverpool is the usual English mart for this delicacy.

THE supposed production of free fluorine in gaseous form by M. Moissau, of Paris, is exciting considerable interest in French scientific circles. M. Bertholet has expressed his belief that the gas is pure fluorine: but more experiments have yet to be made.

MR. W. H. DARLING, F.C.S., communicates some very important observations on the varying results obtained by the use of the different processes for decolourised tincture of iodine. He shows that an acid or a neutral solution may be obtained, or that, by using ammonia or other alkaline deodoriser, the solution contains an iodide and iodoform, and not an iodate, as is generally assumed.

MESSRS. CROOKES, ODLING, AND TIDY have reported some observations in regard to the *bacillus anthracis*, which go to show that this particular germ does not retain its vitality for a lengthened period in ordinary water. We believe they will pursue the subject by making observations on other bacilli.

AMONG the letters we publish this week will be found one from Mr. G. F. Schacht, disclaiming any responsibility for the action taken by the firm with which his name is associated in reducing prices.

THE Local Veto Bill, introduced into the last Parliament, is again talked about. It would confine the supply of intoxicating liquors to chemists and druggists on medical prescription. It may be gratifying to druggists, or the reverse, to know that there is no immediate prospect of its passage.

AN injunction has been granted against Messrs. Day & Martin, who had infringed the rights of the makers of Brown's Satin Polish. The infringement seems to have occurred through an oversight, and the defendants had promptly done all they could to remedy their error.

## DIARY OF THE WEEK.

Monday, July 26.

Sale by auction of druggist's stock and fixtures, at 38 Houndsditch, E.C., at 1 P.M.

Tuesday, July 27.

Public sales of drysalteries, at Commercial Sale Rooms, at 1 P.M.

Public sale of cinchona, at 6 Mincing Lane, at 1 P.M.

Wednesday, July 28.

Public sales of spices, at Commercial Sale Rooms, at noon.

Thursday, July 29.

Public sale of gums, at Commercial Sale Rooms, at 11.30 A.M.

Saturday, July 31.

Cricket match—Pharmaceutical v. City Mills—at City Mills Ground, Stratford, E.



## Metropolitan Reports.

**FESTIVITY.**—On Saturday last the employés of Messrs. Walker, Troke & Co., accompanied by the principals and a few friends, took their annual holiday. The locality selected was the Rye House, which, with its varied attractions, ranging from swings to subterranean passages and skeletons, has a fascinating influence over "bean-feasting" pharmacists. In spite of the unfavourable weather, a pleasant day was spent, and the party returned to town about 10 o'clock, all the better for the opportunity which the visit afforded for employers and employed to unite together in friendly intercourse.

## Provincial Reports.

ITEMS of news, and newspapers containing matters of interest to the trade, sent to the Editor, will much oblige.

### BANGOR.

**DISPUTED ACCOUNT.** In the Bangor County Court on Monday, before his honour Judge Horatio Lloyd, Messrs. Hovenden & Sons, general dealers, London, were sued by Messrs. Jones & Hamilton, chemists and dentists, Bangor, to recover 18s. 4d., being an amount overpaid. Mr. F. A. Evans appeared for the plaintiffs, and stated that the goods in respect of which the claim was made were not in accordance with the orders given, payment being made under protest. The defendants had paid 6s. 8d. into court, representing that it had been debited in error for another customer. The defence was that the goods were returned damaged. Judgment was given for the plaintiffs, his honour characterising the defence as childish and a waste of time.

### BIRMINGHAM.

**FIRE IN A CHEMICAL WORKS.**—A fire occurred on Wednesday evening on the premises of Messrs. Newton, Robinson & Co., chemical manufacturers, 80 Bagot Street. The fire was quickly subdued by the brigade before much damage was done, and that chiefly consisted of some shedding.

### BUXTON.

**POISONING BY PRUSSIC ACID.**—An inquest was held on Monday on the body of Ellen Haywood, 29, who committed suicide by taking prussic acid. Deceased was a farmer's daughter, and was acting in the capacity of housekeeper to a gentleman in Buxton. She had always been of a cheerful disposition, and no motive was shown for the deed. Mr. Smithyman, Spring Gardens, supplied her with sixpennyworth of the poison on her stating that she knew how to use it, and wanted it to kill an aged dog with, and complying with the conditions of the Sale of Poisons Act. There was insanity in the family, and in summing up the Coroner said he did not think anyone whose mind was rightly balanced could support a verdict of *felo de se*. He spoke strongly upon the regulations with regard to the law of dispensing poisons, and said it ought to be a great deal more stringent. Verdict: "Committed suicide during temporary insanity."

### HULL.

**CASTOR-OIL IMPORTS.**—The ss. *Glenmorren* arrived at Hull one day last week from Calcutta with 17,000 quarters of linseed on board, and 1,200 cases of castor oil. Until this importation no castor oil had come to Hull from the East Indies since 1852, though in former days it was a frequent portion of the cargo of Hull vessels.

### LIVERPOOL.

**PHYSICIAN TO THE CHILDREN'S INFIRMARY.**—Dr. Peter Davidson, of 1 St. James's Road, has been appointed to the position of honorary physician to the institution in place of

Dr. Greaves, resigned. Dr. Davidson has for some years acted as assistant medical officer and also as house-surgeon.

**CHARGE OF FORGERY.**—Percival Henry Gilbert, who, as reported last week, was remanded on a charge of forging a cheque for 15l., and obtaining payment thereof from Messrs. Evans, Sons & Co., chemists, of Hanover Street, was committed for trial on July 15.

### SHEFFIELD.

**A SAD STORY.**—Evan Davies, 33, chemist and druggist, native of Merthyr Tydfil, died at the Sheffield Hospital on Tuesday, from laudanum poisoning. He had been acting as dispenser and assistant to various medical men in the town, but being out of a situation he went to Nottingham about three weeks ago and returned last Monday. He went to his old lodgings, but the landlady, having all the rooms occupied, was unable to accommodate him. Mr. Davies then went away, and in a short time returned in an inebriated condition, and said he would like to stop, if only to sleep in a chair, and told the landlady if she refused he would commit suicide. She refused to allow him, on account of the trouble his drinking habits had caused her, and while she was away to fetch a constable he swallowed the contents of an ounce bottle of laudanum, which he had previously purchased from Mr. Basker, London Road, and all efforts to restore him were unsuccessful. He had on previous occasions threatened to commit suicide when under the influence of drink. Only sixpence was found in his possession, and at the inquest held on Wednesday a verdict of "Temporary insanity" was returned.

### SCOTLAND.

#### ABERDEEN.

**THE NEW PRICE-LIST** is being sold throughout the town. It contains many reductions in prices, also has numerous additions of new preparations. It is anticipated that it will give general satisfaction, although some may object that some of the prices are too low.

#### EDINBURGH.

**PROFESSOR SIR DOUGLAS MACLAGAN.**—The Board of Examiners for Scotland, at their meeting on July 14, passed the following resolution, which was ordered to be engrossed in the minutes and a copy sent to Sir Douglas MacLagan, whose reply is also appended.

The members of the Board of Examiners for Scotland of the Pharmaceutical Society desire to record the great gratification with which they have learned that it has pleased Her Majesty recently to confer the honour of knighthood on Sir Douglas MacLagan.

They regard the bestowal of this dignity as a singularly fitting and appropriate recognition of the varied abilities and attainments by which Sir Douglas has, throughout a long and brilliant career, shed fresh lustre on his profession, and enhanced the name and the fame of the Edinburgh School of Medicine, as well as of the many public services in various departments which he has rendered during that time; while from the universal respect and esteem which his many personal and social qualities have inspired they feel assured it will command general satisfaction.

In addition to these considerations, they have to refer to the circumstance that Sir Douglas has for many years been associated with this Board as Privy Council Assessor at their meetings, and they recall with pleasure the fact that his relations to the Board in that capacity have always been of the most amicable and harmonious nature, and they ascribe this in great part to the uniform courtesy and consideration which he has ever displayed. They gladly, therefore, take this occasion to offer him respectfully their warm congratulations and best wishes.

In name of the Board,  
J. B. STEPHENSON, Chairman.

To this Sir Douglas MacLagan replied as under:—

23 Heriot Row, Edinburgh,  
July 14, 1886.

"MY DEAR SIR,—I am extremely gratified by the cordial congratulations conveyed to me on the honour which Her Majesty has been pleased to bestow upon me, and by the warm terms in which your Examining Board have been pleased to express themselves regarding me personally.



"I am most desirous fully to express my sense of the pleasant relations which have subsisted between your board and myself in my capacity of Privy Council Assessor, and my satisfaction at being able to state most conscientiously my belief in the earnestness and fidelity with which your examiners perform their important duties.

"I trust that these relations may continue unchanged so long as I am entrusted with these duties by the Privy Council, and they will be made all the more agreeable to me that I have received at the hands of the board so cordial an expression of their regard.

"Please convey to your colleagues and accept for yourself my most sincere thanks, and believe me,

"Yours very truly,  
(Signed) "DOUGLAS MACLAGAN.

"J. B. Stephenson, Esq.,

"Chairman of the Board of Examiners in Scotland."

**ACTION BY A COFFEE MERCHANT.**—In the Edinburgh Sheriff Court recently, it may be remembered conjoint actions came before Sheriff Hamilton at the instance of Messrs. John Smith & Co., manufacturers of essence of coffee, Lower Gilmore Place, Edinburgh, and the Self-opening Tin Box Company, London. Last year Smith & Co. bought from the company twenty gross of tins, and also a lever press, costing in all 13*l.* 2*s.* 8*d.* The goods were supplied in July, and Smith & Co. having neglected or refused to pay for them an action was brought against them in the Debts Recovery Court in November for the amount. About the same time Smith & Co. raised a claim for 100*l.* against the Tin Company for loss sustained through the tins, they alleged, not being suitable for milk and coffee. The actions were conjoined, and ultimately the Sheriff found for the Tin Company in the action for damages, and gave decree for the 13*l.* 2*s.* 8*d.* in favour of that Company. Smith & Co. appealed to Sheriff Crichton, who now arrived at the same decision, though on different grounds. Sheriff Hamilton found it had not been proved that the tins were disconform to the seller's representations, and Sheriff Crichton holds that the directions for putting on the lids were not followed, and that there was not timeous rejection if they were not as guaranteed.

**A FLOURISHING EDINBURGH SCIENTIFIC SOCIETY.**—Last Monday night Mr. Robert Gray, vice-president, at the concluding meeting of the session of Edinburgh Royal Society, in reviewing the work of the 103rd session, said at no period had the Society shown so much vitality and capacity for solid scientific work. Ninety-one communications, a large proportion of which were on physical subjects, had been made during the session. Thirty-six fellows joined the Society, four died, and the total number on the roll was now 462.

**DENTAL SCHOOL.**—The annual meeting of the Edinburgh Dental School and Hospital Directors was held on Monday last. The report submitted to the meeting stated that the administration committee had under consideration the subject of dental education for women, and had agreed, under sanction of the directors, to afford equal facilities for female students. In a few years we may expect a large increase of dental ailments among the young men of the period.

**A RARE PLANT AT THE EDINBURGH EXHIBITION.**—There may be seen at present at the Edinburgh Exhibition a very fine and rare Agave (*A. Philiphera*), with a head coming into flower over five feet in height. The Agave, or American aloe, as it is often called, has either no proper stem or only a very short one, bearing at its summit a crowded head of large fleshy spiny leaves. This particular variety, *Philiphera*, is so called from the thready face of the leaves. In its native clime there shoots out from the midst of the crown of leaves a straight upright scape, or flower stem, rising often to the height of 24 to 36 feet, and being at the base one foot in thickness. The terminal panicle has often as many as 4,000 flowers. The Agave rarely flowers in this country, even when kept in hot-houses, until it reaches a great age. Hence the popular tradition that it only blooms once in 100 years. In the present case the scape will probably attain to a height of seven or eight feet, and a large flower pinnacle is being formed. The plant, which has been set out by Messrs. Ireland & Thomson, has had an encircling fence put round it, and other precautions taken, to preserve it from hurt.

## GLASGOW.

DR. DORAN has recently opened his fourth "Medical Hall" in Glasgow. This one is situated in North Street, at the corner of Bath Street.

The quarterly meeting of the Glasgow Chemists' Price-list Committee was held last week, when after some discussion it was resolved to make no alteration in the prices adopted at the April sittings.

HOLIDAY fever is rampant over the whole city and suburbs at present. Notwithstanding the cries of dull trade and cut prices, it has seized the "Knights of the Pestle," many of whom are sojourning on the beautiful shores of the Firth of Clyde, while some have crossed the "pond" to see their American cousins.

## GREENOCK.

**SMUGGLING OF FLORIDA WATER.**—On Saturday last Captain Gjertsen, of the Norwegian barque *Johanness Rod*, 444 tons, was brought before Justice D. Campbell, charged with smuggling thirty-seven bottles of Florida water. He pleaded guilty, and was fined 6*l.* 13*s.* 4*d.*, including expenses.

## MARRIAGE.

**BISSET—GILMOUR.**—At Burntisland, on July 13, by the Rev. James Parlange, A.M., assisted by the Rev. James Gilmour, B.D., uncle of the bride, John Bisset, to Chrissy, eldest daughter of Andrew Gilmour, pharmaceutical chemist.

## Obituary.

**ADKINS.**—On July 19, Mr. T. Adkins, of the firm of Messrs. Smyth & Adkins, chemists, Pontypidd. The deceased was a favourite with all who knew him, and had often identified himself with popular entertainments in the town, his versatile talents in the histrionic art never failing to excite deep interest. Mr. Adkins, who was 35 years of age, leaves a widow and several young children.

**JONES.**—On June 29, Mr. David Jones, pharmaceutical chemist, Clynderwen. Aged 53 years.

**PATTINSON.**—On June 16, Mr. Daniel Pattinson, chemist and druggist, Whitehaven. Aged 36 years.

**ROGERSON.**—Mr. Michael Rogerson, lately of the firm of M. Rogerson & Son, chemists, Darley Street, Bradford, was found dead in bed at his residence at Boston Spa, on Saturday morning last, July 17. Mr. Rogerson, who was well known and highly respected in Bradford, had been in a declining and weak state of health for a long time, and though the doctors who attended him for two days before his death thought there was no immediate cause for alarm in his condition yet the event, sudden as it was, was not unexpected by his relatives. Mr. Rogerson was a native of Doncaster, and was born in 1812. In 1827 he began to serve his apprenticeship with Mr. Williamson, then a chemist in Darley Street, Bradford. In 1834 he started in business for himself. His son (Mr. Herbert Rogerson) afterwards entered the business, and the partnership was continued until a few weeks ago, when a dissolution was arranged. Mr. Rogerson resided in Bradford until about twelve years ago, when he removed to Boston Spa. He was a member of the Bradford Town Council when the borough was incorporated in 1847, and represented the North Ward until 1848. He was at one time a member of the Board of Guardians, and was a founder of the Bradford Cemetery Company, of which he was also a director. He was the oldest Freemason in Bradford, and a Past Master of the Lodge of Hope.

**SIMPSON.**—At Endymion House, Maud, on July 17, George Simpson, chemist, Peterhead. Aged 42. Mr. Simpson served his apprenticeship in Aberdeen, and afterwards was in Glasgow and several other large towns, before he bought the business in Peterhead which had been carried on by his predecessor, Mr. Lumsden. He took a great interest in trade matters, and was a member of local pharmaceutical societies. For fully a year Mr. Simpson had suffered from rheumatic gout, and for six months had been unable to attend to the business which he had carried on so successfully.



## THE SOCIETY OF CHEMICAL INDUSTRY.

ANNUAL MEETING, LIVERPOOL, JULY 14 AND 15.

*(Continued.)*

## SULPHATE OF SODIUM.

THE second operation in the manufacture of soda by the Leblanc process is the decomposition of common salt by means of sulphuric acid, and the consequent production of sulphate of sodium and hydrochloric acid. As the chemical reaction is a very simple one, and had been carried out for the production of hydrochloric acid long before the introduction of the Leblanc process, the improvements that have been made have necessarily taken the form of improved apparatus. Where the primary object was the production of hydrochloric acid, the apparatus employed was either glass retorts or iron pots; but when the sulphate of sodium became the main object of the operation, furnaces were employed, either with or without a lead lining.

The operation is now conducted in two stages. The first, decomposition with the formation of bisulphate of sodium, takes place at a low temperature in an iron or lead pan, yielding strong hydrochloric acid, which can be easily condensed, and when the hydrochloric acid was of little value, the decomposition was completed, forming neutral sulphate of sodium, in an open reverberatory furnace, the liberated hydrochloric acid passing off together with the products of combustion. Where more hydrochloric acid was required, either for sale or for use, than was yielded by the pan, a close or muffle furnace was substituted for the second stage, or the roasting of the sulphate.

By the use of these improved sulphate furnaces, together with condensers or towers filled with coke, through which the gas passes, meeting a stream of water (a plan for which Mr. Gossage obtained a patent so early as 1836), the sulphate can be manufactured of excellent quality, and without causing injury to the neighbourhood. The substitution of machinery for hand labour, first attempted by Mr. W. W. Pattinson in 1843, has been carried to perfection by Messrs. Jones & Walsh, Mr. Mactear, and the Bede Company. Owing to the difficulty of obtaining strong hydrochloric acid, in the case of Messrs. Jones & Walsh and Mactear's furnaces, most manufacturers find it convenient to use improved muffle furnaces worked by hand.

Mr. Gossage introduced his plan of condensing the hydrochloric acid in 1836, but a long time elapsed before it was generally adopted. The construction of plant for chemical purposes was then very imperfect and costly, and only those manufacturers who were possessed of sufficient capital were able to apply the improved system, notwithstanding the complaints of nuisance and the frequent litigation that ensued. The present generation can hardly form an idea of the intensity of feeling and prejudice aroused against chemical and alkali works during the first forty years of their existence—*i.e.*, up to the passing of the Alkali Act in 1863.

Hardly an assize passed without an action for nuisance or damage, and, as this litigation continued without absolute ruin to the manufacturer, the public believed the profits to be fabulous, and many people without chemical knowledge commenced to decompose salt, sometimes selling the salt-cake to soap-makers to be converted by them into black ash, or, as the demand for alkali continued to increase, converting the salt-cake themselves into soda ash. The effect was, that long after Mr. Gossage had solved the difficulty of condensing the large quantities of hydrochloric acid evolved, many works continued to manufacture without condensation, and those who expended money on condensing apparatus were only induced to use it in proportion as they found an outlet for the liquid hydrochloric acid.

Now, at last, in the year 1863, the Alkali Act was passed, and good condensation was made compulsory. I have already described in my paper on Noxious Gases Legislation, read before the first meeting of the Society. In Lancashire, and more particularly in Liverpool and St. Helens, there was a considerable local demand for hydrochloric acid: but, as this acid was required in a comparatively concentrated form, a different mode of making the salt-cake was adopted to that which was found suitable on the Tyne, where the greater portion of the acid, after condensation, was run to waste. It

was in Lancashire, therefore, that the pot was first separated from the furnace, and the close roaster introduced by Mr. J. C. Gamble.

With an increasing demand for alkali, much more acid was produced than could be easily disposed of, and the alkali manufacturer was gradually led to manufacture bleaching powder for the purpose of utilising his hydrochloric acid. When bleaching powder or dry chloride of lime was first made by Mr. C. Tennant, of St. Rollox, the chlorine was produced from a mixture of salt, manganese and sulphuric acid: but when, by the manufacture of sulphate of sodium, a large quantity of liquid acid was obtained of little value, it was used to produce the chlorine by the direct action of the hydrochloric acid on peroxide of manganese.

Much difficulty was encountered in constructing suitable apparatus for such a pungent and corrosive gas as chlorine, and many improvements were gradually introduced into the manufacture in the form of improved apparatus.

At an early date attention was called to the possibility of recovering the manganese which ran to waste in the still liquor; but Mr. Dunlop was the first to effect this regeneration in a practical manner by a very ingenious process, which he introduced in Messrs. Tennant's works at Glasgow. In this process the waste manganese liquors were neutralised by lime, and the neutralised liquor converted into carbonate of manganese by treatment with carbonate of calcium under pressure of  $2\frac{1}{2}$  atmospheres. The resulting carbonate of manganese was then converted into the peroxide by heating in a current of air. The plant required was very costly in proportion to the quantity regenerated, and this, together with the cost of the fuel employed, prevented the extension of the process to other works.

With this exception none of the various processes suggested to recover the manganese was successful, and the preparation of chlorine continued without any great change, till Mr. Weldon carried to perfection his well-known method of recovery, in Mr. Gamble's Works at St. Helens. This process has been so often described that it is unnecessary to further particularise it here. It was early adopted in the Widnes and the St. Helens district, and, as the demand for bleaching powder increased, spread rapidly. The economic effect of the process was very great, since the alkali manufacturer was enabled to produce chlorine and its products at a marvelously small cost, so long as the price of the soda left a small profit.

With a decrease in the price of bleaching powder came a rapid increase of consumption, since the paper manufacturers, freed from the Excise Duty on paper in 1861, turned their attention to other fibres, requiring large quantities of bleach, such as straw, esparto, wood, &c., as a substitute for rags, which were daily becoming scarcer. There was, simultaneously, a large increase of the exports of bleaching powder from this country to the Continent as it was manufactured so much cheaper by the new process before it had been generally adopted in France and Germany.

The increase in the trade was greater in Lancashire than elsewhere, and for the next ten years there was a marvellous increase in the population of Widnes and St. Helens, owing to the erection of new works.

Another use for hydrochloric acid was found in the production of potassium chlorate, first manufactured on a comparatively large scale by Mr. Balmain and Mr. S. A. Parnell, at St. Helens in 1847, and by Mr. Gamble in 1848.

The process employed was the saturation of milk of lime by an excess of chlorine, which produces a pinkish solution of chlorate of calcium and chloride of calcium, in the proportion of about 1:5.5, and the subsequent decomposition of the chlorate of calcium by heating with chloride of potassium. The chlorate of potassium is then separated from the calcium chloride by crystallisation. This process was first proposed by Liebig, but it is not certain whether he was aware of the necessity of perfectly saturating the lime with chlorine before applying heat. This fact seems to have been known to Mr. Parnell, who proved by experiment that when even a small quantity of lime was present, oxygen is disengaged largely on heating, with a proportionate loss of chlorate in the liquors.

The demand for chlorate of potash being comparatively restricted, the manufacture could not be largely increased without an undue fall in the price, and for many years the quantity made was exceedingly small. The price at first was 2s. 4d. per lb., but with an increased production the price fell



quickly, and in 1852 was 10*z.* per lb., at which it left little or no profit, until by the introduction of the Weldon manganese recovery process the cost of production was materially lessened. Of late years, with a largely-increased consumption for match-making, the manufacture has increased considerably, particularly in Widnes and St. Helens, but as the consumption in the colour manufacture fell off, a large stock accumulated, and it was almost unsaleable even at 5*z.* per lb.

I must not leave this portion of the subject without alluding to the beautiful process for the production of chlorine invented by Mr. Deacon, another Widnes manufacturer, but which, for reasons which it would take me too long to explain fully, has not been generally adopted. I shall have to recur again to the effects of these improvements in the utilisation of the chlorine of the salt, when I come to speak of the ammonia soda process.

Before proceeding to the third operation in the Leblanc alkali process, I must call attention to some interesting attempts that have been made in this district to supersede sulphuric acid chambers, and the manufacture of sulphuric acid, as a preliminary to the conversion of common salt into sulphate of sodium.

The first in point of time is that of Mr. Longmand, which consisted in roasting iron pyrites, containing small quantities of copper, with salt, in a reverberatory furnace. The result was the production of sulphate of sodium and ferric oxide, with the evolution of hydrochloric acid, chlorine, and some chloride of iron and copper. From the calcined mass the sulphate of sodium was extracted by lixiviation, and the residue worked for copper and silver. The chlorine evolved was used to make bleaching powder, but the difficulties which had to be overcome in utilising the chlorine on account of its dilution, and the loss of sulphur in the calcination, rendered the process less remunerative than might have been expected. It was worked at the Patent Alkali Company's Works at St. Helens, from 1846 to about 1856, when it was abandoned. The process, however, in another form—viz., treating the burnt instead of the unburnt ore—has, as I have already shown, been more successful, and the sulphate of sodium, which now runs to waste, may be utilised, if the expense of evaporating the liquors is not too great.

Another process, perfected by Mr. Hargreaves, and first carried out by him at Widnes, has been adopted by some manufacturers, and would have been more generally used if it had not been for the simultaneous improvement of the sulphuric acid manufacture by the introduction of the nitrate-saving apparatus, and the low price of nitrate of soda.

The process consists in the direct action of sulphurous acid and steam upon common salt, at a temperature of 800° to 900° F., yielding a very pure sulphate of sodium and hydrochloric acid, which is condensed in the usual manner. The process is in operation at three works in Widnes, decomposing about 25,000 tons of salt annually.

The next step in the conversion of sulphate of sodium into carbonate is the making of black ash by fluxing the sulphate of sodium with carbonate of calcium and coal. This is the true Leblanc process, and so far as the chemical operation is concerned remains essentially the same as that practised by Leblanc himself. The theory of the operation is, however, not absolutely decided, even at the present day, and its obscurity led to numerous analyses of and investigations into the nature of black ash, and of the waste after lixiviation, that fill volumes of chemical literature. It is not necessary for me to refer more in detail to these investigations of Gossage, Meyer, Brown, Kynaston, Scheurer, Kestner, Kolb, and Mactear, which are well known to all interested in the alkali manufacture, as the practical result has been confined to some slight alterations in the quantities of the materials used in the mixing before the introduction of the charge to the furnace. The almost universal adoption of mechanical furnaces has brought about a general uniformity in the production, which with hand furnaces varied considerably in different works. When my father first commenced making black ash on the large scale, in 1823, the principal improvement he effected was in the quality of the black ash produced, since the small quantity then made in England and France contained only about 10 or 12 per cent. of alkali. From the first he produced black ash, testing by the then alkalimetric test, 24 per cent. of alkali, and in this form it was delivered to the soap-makers, of which there were in

Liverpool itself seven or eight, to be used in place of kelp. It was found, however, when this black ash was exported, it lost its strength from exposure to the air, and to meet this difficulty the carbonate of soda was extracted by lixiviation, and the liquors calcined in a reverberatory furnace, producing the so-called white ash or soda ash. It is not necessary for me, nor would time allow, to refer at length to the numerous small improvements gradually introduced into the manufacture since its commencement, but many were first introduced in this neighbourhood, such as the utilisation of the waste heat for evaporation, the systematic lixiviation of the black ash, the use of boat and fishing pans, the separation of the salts of monocarbonate of sodium from the caustic alkali or red liquor, and finally the manufacture of caustic soda itself.

These, and many other improvements, are due to Lancashire manufacturers, among whom I may mention Gossage, Gamble, Deacon, &c. In addition to these, the greatest improvements of all, revolvers or mechanical furnaces, were also first introduced in this neighbourhood, in 1853, by G. Elliott and W. Russell, at the Patent Alkali Company's Works at St. Helens. This first revolver did not work satisfactorily, and it took a long time and numerous experiments on the part of Messrs. Stevenson & Williamson at Jarrow to overcome the difficulties encountered in the lixiviation of the metals, which were not porous enough; but now all these have been overcome, and the metals produced by the revolver are superior in every way to the best worked by hand.\*

At an early period a difference in the mode of working on the Tyne, and in Lancashire, developed itself. On the Tyne the greater portion of the alkali produced took the form of carbonated ash and crystals of soda, but in Lancashire, where so much of the ash was used for bleaching and soap making, a caustic ash was produced, and as the sulphide and ferrocyanide of sodium it contained was found to be injurious for many purposes, much ingenuity and skill were employed to eliminate these from the liquors. In 1853 Mr. Gossage obtained a patent for purifying the black ash liquors by the oxidation of the sulphide of sodium, by passing them through a tower filled with coke, meeting a current of air, or if a carbonated ash were required, by passing carbonic acid through the tower. This patent also included a process for the production of caustic soda, and at a later period (1857) he suggested removing the sulphide by means of hydrated ferric oxide, zinc, manganese, or other suitable metal. These suggestions all culminated in the separation of the carbonate of soda from the caustic soda in the liquors by the use of so-called fishing pans, where the salts, as they are deposited on evaporation are withdrawn by perforated ladles, and the salts carried to a drainer.

The concentrated liquor is further evaporated with addition of nitrate of sodium, and is then run into settlers, where it deposits a further quantity of salts, and the red liquor is further concentrated in a cast-iron pot, and when strong enough to solidify is packed as cream or red liquor caustic soda. The nitrate of sodium reacts both on the sulphide and cyanides of sodium, but it was observed first, I believe, by Dr. Pauli, that by a further concentration when the heat approached redness, the destruction of the cyanides is complete, and graphite is found proceeding from the carbon of the cyanide. When this, together with the aluminium silicate, is allowed to settle out, the caustic soda becomes colourless, and, when packed, perfectly white. The first red liquor caustic soda made on a large scale, was made by Mr. Gamble at St. Helens, under Mr. Gossage's patent, but much difficulty was experienced in the manufacture, and it was confined to a few firms in the Widnes and St. Helens district. As a market was found at good prices for this caustic soda, it occurred to some manufacturers to causticise the liquors with lime before evaporation, and Messrs. Roberts, Dale & Co., of Manchester, and Messrs. Hutchinson & Co., of Widnes, erected a large plant for the manufacture of this so-called artificial caustic soda, to distinguish it from the red liquor caustic then in the market. Most of this good coloured or white caustic soda was made in this manner, but the cost was considerably greater than that of the red liquor caustic, and until the consumption increased very

\* The extent of this improvement may be gauged if we consider that in a modern revolver of large dimensions as much salt cake can be decomposed in a given time as in ten hand furnaces requiring forty men, and the decomposition itself is from 10 to 15 per cent. more efficient.



considerably it did not pay the manufacturer to incur this expense. In the exhibition of 1862, there were exhibited samples of this article by several manufacturers, and in 1866, as is seen by the statistics of that year, a large quantity (11,213 tons) was manufactured in Lancashire, and 3,720 tons on the Tyne. With the extended consumption of caustic soda for use in the refining of petroleum, the manufacture of soap and paper making, and in the manufacture of aniline colours, this industry has taken an enormous development, and in 1885, 140,795 tons were manufactured in Lancashire, and 4,159 tons on the Tyne.

After the black ash has been lixiviated, and the soda converted into either soda ash or crystals or caustic soda for sale, there remains the alkali waste, containing nearly all the sulphur consumed in the manufacture, and this waste, when not removed out to sea, as on the Tyne, accumulates in large heaps round the works, and unless properly treated, infects the air with the unpleasant odour of sulphuretted hydrogen. Since the passing of the Alkali Act of 1863, it may safely be asserted that nearly all the complaints of nuisance from alkali works are due, not to hydrochloric acid, but to the sulphuretted hydrogen given off by drainage from the waste heaps. It has not been for the want of either enterprise or science on the part of the manufacturers that this source of nuisance continues to exist. Means are well known which will render the waste comparatively innocuous, and it is satisfactory to know that the method now recommended by the Alkali Inspector for the prevention of the nuisance from waste heaps emanated from the manufacturers themselves. It is, however, to be regretted that hitherto no process for recovering all the sulphur in the waste has been successful from a pecuniary point of view.

A small quantity is extracted by Mr. Mond's process, but Mr. Gossage's original scheme for decomposing the sulphide of calcium by carbonic acid, and Messrs. Schaffner and Helbig's plan for decomposing the waste by magnesium chloride promised sufficiently well to induce my father in 1839, and Messrs. Chance Brothers in 1882, to spend large sums of money in attempting to work them practically.

The fall in the price of sulphur, and the increasing value of hydrochloric acid, owing to the ammonia-soda process, have entirely changed the commercial conditions, so that unless Messrs. Parnell and Simpson's process for uniting the Leblanc with the ammonia-soda process (to which I shall allude later on) succeeds, I see little prospect of the recovery of the sulphur in future.

I have now traced very rapidly the rise and progress of the Leblanc alkali industry in this district, from 1823 to 1878, a period slightly exceeding half a century, and it is desirable at this stage to review the position of the trade, and to mark the change which the process has wrought in the prices of alkali and bleaching-powder, the two forms in which the chlorine and sodium of the salt is made available for industrial purposes. I have selected the year 1878 for comparison, as from that date forward the competing ammonia-soda process began to influence the price of alkali, and the whole position of the trade changed. I have also added the prices of this year, showing the influence exercised by the competition of the ammonia soda.

The prices of the raw material have not varied nearly so much as those of the manufactured products, as will be seen from the annexed tables;—

*Comparative Prices of Raw Materials.*

—	Liverpool, 1827-1830	1832-1840	Widnes, 1873	Widnes, 1886
Sulphur .. ..	5 <i>l.</i> 10 <i>s.</i>	11 <i>l.</i> 10 <i>s.</i> (monopoly)	6 <i>l.</i> 15 <i>s.</i>	5 <i>l.</i>
Salt .. ..	6 <i>s.</i> to 8 <i>s.</i>	9 <i>s.</i>	8 <i>s.</i> 9 <i>d.</i>	8 <i>s.</i>
Limestone .. ..	—	4 <i>s.</i> 6 <i>d.</i>	5 <i>s.</i> 6 <i>d.</i>	4 <i>s.</i> 6 <i>d.</i>
Lime .. ..	13 <i>s.</i> 4 <i>d.</i>	7 <i>s.</i> 6 <i>d.</i>	14 <i>s.</i>	11 <i>s.</i> 6 <i>d.</i>
Nitrate of soda .. ..	—	16 <i>l.</i> 10 <i>s.</i>	14 <i>l.</i>	9 <i>l.</i> 10 <i>s.</i>
Nitrate of potash .. ..	30 <i>l.</i>	—	—	—
Slack .. ..	(1831) 6 <i>s.</i> and 6 <i>s.</i> 9 <i>d.</i>	At Liverpool, 1839, 5 <i>s.</i> ; 2 <i>s.</i> 6 <i>d.</i> per ton at Newton in 1841	5 <i>s.</i>	4 <i>s.</i> 6 <i>d.</i>

The cost of the sulphur used has been reduced by the substitution of pyrites, but to-day the price of sulphur itself is the same as in 1830, viz. 5*l.* per ton. For the prices of manufactured goods and of the raw materials at the earlier period, I have taken the prices according to my father's books during the years 1827-30, when the consumption of black ash had superseded that of kelp in Liverpool. On referring to the table, it will be seen that black ash was sold in 1827 at 10*s.* for 20 per cent. or 6*d.* per degree. In 1823 the price had been reduced to 7*s.* for 20 per cent. In 1830 the first large sales of white ash were made at about 16*l.* 10*s.* per ton, but this ash seems to have been only about 35 per cent., and may have been made partly from the mother-liquor of crystals. In 1835 the same price seems to have been paid, but the strength now was 48 to 50 per cent., and from that date forward the strength 48 per cent. was taken as the standard, and the ash sold according to degree at prices varying from 3*d.* to 4*d.*, and the price has been gradually reduced, with fluctuations according to the demand to 1*d.* per degree. Before the introduction of revolvers and the more modern improvements, a price 1½*d.* per degree, or 7*l.* per ton barely covered the cost of production.

In 1852 we have the first estimate of the production of alkali for the United Kingdom, prepared by Mr. Allhusen; and in 1861, according to Messrs. Schunck, Smith, and Roscoe, the production in Lancashire was as mentioned below:—

—	1852 Manufactured in the United Kingdom	1852 In Lancashire	1861 In Lancashire
Alkali .. ..	71,193 tons	26,343 tons	93,600 tons
Soda crystals .. ..	61,044 "	3,500 "	8,849 "
Bicarbonate of soda .. ..	5,726 "	1,203 "	11,700 "
Bleaching powder .. ..	13,100 "	1,250 "	8,660 "

But all these estimates were very imperfect, and it is not

*Comparative Prices of Manufactured Articles at Various Dates.*

—	Liverpool, 1827-1830	Liverpool, 1839-1840	Liverpool, 1873	Liverpool, 1886 After Ammonia Process
Black ash .. ..	7 <i>l.</i> to 10 <i>l.</i> for 20 per cent.	(1835) 4 <i>l.</i> 10 <i>s.</i>	—	—
Soda ash .. ..	16 <i>l.</i> 10 <i>s.</i>	15 <i>l.</i> per ton	1½ <i>d.</i> to 1¾ <i>d.</i> per cent. per cwt. or 5 <i>l.</i> 10 <i>s.</i> to 6 <i>l.</i> per ton 2 <i>l.</i> (unpacked)	1 <i>d.</i> to 1½ <i>d.</i> per cent. per cwt., or 4 <i>l.</i> to 4 <i>l.</i> 10 <i>s.</i> per ton 25 <i>s.</i> per ton 17 <i>s.</i> "
Salt cake .. ..	7 <i>l.</i> 10 <i>s.</i>	6 <i>l.</i> 10 <i>s.</i> per ton	—	—
Nitre cake .. ..	12 <i>l.</i> 5 <i>s.</i> from nitrate of potash	—	—	—
Soda crystals .. ..	18 <i>l.</i> 10 <i>s.</i>	11 <i>l.</i> per ton	3 <i>l.</i> 12 <i>s.</i> 6 <i>d.</i>	2 <i>l.</i> 15 <i>s.</i> per ton
Caustic soda, 70 per cent. ..	—	—	12 <i>l.</i> 10 <i>s.</i>	8 <i>l.</i> 5 <i>s.</i> "
" " 60 " ..	—	—	10 <i>l.</i> 5 <i>s.</i>	7 <i>l.</i> 5 <i>s.</i> "
Bleaching powder .. ..	—	19 <i>l.</i> per ton	5 <i>l.</i>	5 <i>l.</i> 17 <i>s.</i> 6 <i>d.</i> per ton
Concentrated vitriol .. ..	2 <i>d.</i> per lb.	1½ <i>d.</i> per lb.	3 <i>d.</i> per lb., or 4 <i>d.</i> per ton	4 <i>d.</i> per ton
Muriatic acid * .. ..	2 <i>d.</i> "	1 <i>d.</i> "	5 <i>s.</i> to 10 <i>s.</i> per ton	5 <i>s.</i> to 10 <i>s.</i> per ton
Nitrous acid * .. ..	6½ <i>d.</i> "	—	—	5 <i>d.</i>
Brown vitriol .. ..	¾ <i>d.</i> to 1 <i>d.</i> per lb.	—	3 <i>l.</i> per ton	2 <i>l.</i> per ton

\* Where acids are sold per lb. the discounts vary according to circumstances.



until 1866 that we have a trustworthy record of the trade, which is shown in the following table:—

	Lancashire Branch	Tyne Branch	Total
Soda crystals .. ..	24,978	86,000	110,978
Soda ash and refined alkali .. ..	87,314	74,000	161,314
Caustic soda .. ..	11,213	3,720	14,933
Bicarbonate of soda .. ..	6,457	11,000	17,457
Sulphate of soda .. ..	32,137	2,400	34,537
Bleaching powder .. ..	20,006	27,000	47,006
Bleach liquor .. ..	5,871	—	5,871
Oil of vitriol (for sale) .. ..	18,592	9,000	27,592
Muriatic acid (for sale) .. ..	13,819	700	14,519
Salt decomposed .. ..	194,000	157,000	351,000

In 1877 the Alkali Association commenced their annual statistics, and in the report of 1878 the most notable feature is the large increase in the production of caustic soda and bleaching powder, more especially in Lancashire as compared with the Tyne. In 1861 the manufacture of caustic soda in Lancashire is estimated at 4,680 tons, in 1878 the total for the United Kingdom was over 96,000; of which 94,000 tons were made in Lancashire, and this is important in connection with the competition from alkali produced by the ammonia process.

*Statistics of Alkali Trade, 1878, as Issued by the Alkali Manufacturers' Association.*

	West district: Lancashire, Scotland, &c.	East district: Tyne	Total tons
Salt decomposed .. ..	381,958*	183,584	565,542*
Alkali equal to 48 per cent. .. ..	123,939	87,053	207,992
Soda crystals .. ..	47,637	123,175	170,812
Caustic equal to 60 per cent. .. ..	82,585†	2,627	84,6 2
Bleaching powder .. ..	77,100	27,944	105,044
Bicarbonate of soda .. ..	4,703	7,053	11,756
	717,982	420,836	1,148,818

Although I have been able to give the prices of the raw materials before 1860, it is impossible at the present day to estimate the cost of producing alkali before that date with any approach to accuracy; and as the wages paid and wear and tear and general charges vary in different works, it is useless making comparisons, even at the present time. In 1860 for the purpose of fixing the duties under the French Treaty, Mr. Allhusen and I endeavoured to arrive at the cost of production in the two countries, and found a great difference between the cost on the Tyne and in Lancashire; but in order to show the effect of the improvement in the manu-

facture, and the use of Spanish instead of Irish pyrites has had on the cost of soda-ash, the following comparison of the cost of the raw materials to produce a ton of 48 per cent. ash in Lancashire in 1861 and to-day, after a lapse of twenty-five years, is interesting. For 1861, I have taken Mr. Gossage's figures:—

	1861		1886
	£ s. d.		£ s. d.
1½ ton pyrites (Irish) ..	1 15 0	13½ cwt. Spanish pyrites, 14s. (Spanish value) ..	0 9 3
1 cwt. nitrate of soda ..	0 12 0	23 lbs. at 10s. ..	0 2 0
1½ ton salt ..	0 10 0	25 cwt. at 8s. ..	0 10 0
1½ " limestone ..	0 10 0	26 " " 5s. ..	0 6 6
3½ " fuel ..	1 1 0	2½ tons " 4s. 6d. ..	0 12 6
	4 8 0		2 0 3

It is thus seen that, principally by the improvements in the sulphuric acid process, the cost of the raw materials has been reduced over 50 per cent. To this saving must be added the saving in labour by the use of machinery, and the reduction of wear and tear by improved apparatus; but, notwithstanding these improvements, as the cost of production by the ammonia process is very considerably less, the Leblanc alkali-maker cannot continue to work at a profit, unless he is able to utilise the chlorine of the salt to a greater extent and more economically than the ammonia-soda maker. As the consumption of alkali in soda ash is limited, if ammonia-soda works continue to increase part of the alkali produced by them must be converted into other forms, such as bi-carbonate, crystals, and caustic soda; but as the Leblanc alkali-maker can causticise his liquors cheaper than the ammonia-soda maker, the tendency will be for the Leblanc maker to manufacture caustic soda in the place of soda-ash.

The problem before the Leblanc maker is a very difficult one, for he has not only to face the competition of the ammonia-soda maker in the price he obtains for his alkali, but if he increases the quantity of bleaching powder made and the consumption remains the same, the price of this product must also fall. A satisfactory position of the trade can only then be approached when the bleaching powder and other chlorine products together are the equivalent of the quantity of salt decomposed, and such a price is obtained for the chlorine as will compensate the Leblanc maker for his loss on the alkali produced. I have already pointed out how the manufacturer of alkali was forced to condense the hydrochloric acid produced, and indicated the various modes in which he made use of that acid. As by far the larger quantity of the hydrochloric acid produced is used for the manufacture of bleaching powder, the following table is interesting:—

	SALT DECOMPOSED				BLEACHING POWDER	
	Total	Metal Cos.	Brunner, Mond & Co.	Leblanc Alkali Manufacturers	Made	Proportion of Bleaching Powder to Salt
	Tons					B. Powder : Salt
1852 .. ..	137,547	Estimate, Mr. Allhusen	—	—	13,100	1 : 10.6
1860 .. ..	253,000	Estimate, Allhusen and Muspratt, for purposes of French Treaty	—	—	—	—
1861 .. ..	235,360	—	—	—	20,000	1 : 11.76
1862 .. ..	254,600	Estimate at time of consideration of Alkali Acts	—	—	—	—
1866 .. ..	351,000	Report of Hon. Secs. of Alkali Association	—	—	47,003	1 : 7.46
1859 .. ..	306,905	Estimate handed to Commissioners on Rivers Pollution, according to returns received from 42 members of the Alkali Association	—	—	—	—
1871 .. ..	352,350	—	—	—	—	—
1873 (Tyne) ..	187,650	—	—	—	24,970	1 : 7.52
1874 .. ..	459,753	Returns received from 50 members of the Alkali Association	—	—	—	—
1876 .. ..	538,600	In 1877 Alkali Manufacturers' Association commenced to issue annual reports	—	—	—	—
1877 .. ..	578,201	16,549	9,082	552,570	105,523	1 : 5.23
1878 .. ..	563,542	17,153	16,230	539,154	105,044	1 : 5.09
1879 .. ..	615,287	17,171	22,689	594,447	115,290	1 : 4.99
1880 .. ..	700,016	24,013	27,416	643,587	131,603	1 : 4.99
1881 .. ..	675,099	25,252	29,783	620,064	135,826	1 : 4.56
1882 .. ..	679,935	24,183	56,914	598,833	135,170	1 : 4.42
1883 .. ..	705,732	23,793	77,015	602,921	141,863	1 : 4.25
1884 .. ..	693,502	21,869	89,759	578,874	128,651	1 : 4.49
1885 .. ..	722,472	17,794	113,200	591,478	132,761	1 : 4.45

\* Of this, 16,230 tons were decomposed by the ammonia process, producing a corresponding amount of alkali.

† In addition to this there were made in the Liverpool district about 12,000 tons caustic soda more than returned to the Association.



It will be seen that the production of bleaching powder has been stationary for the last five years, since it has been regulated by the manufacturers, and as the stocks are about the same, it is clear the consumption has been stationary also. When we further consider that one ton of bleach can at present be made by the consumption of two-and-a-half tons of salt, and that by improved processes the quantity of salt will be still further reduced, we must look forward to a still further curtailment of the decomposition of salt by sulphuric acid. It is true, there are other uses for hydrochloric acid than the manufacture of bleaching powder, but these do not seem to increase, nor are they likely to do so. As the price of hydrochloric acid is necessarily higher than it was, it may be superseded in some directions by sulphuric acid, which is much lower than formerly. It has been estimated that during the year 1884 hydrochloric acid was utilised for other purposes than the making of bleaching powder to the equivalent of 170,000 tons of salt, leaving 408,874 for the manufacture of bleach; but as the quantity of bleach produced, owing to the restriction, was only 128,651 tons, it is evident the acid from 87,247 tons of salt was not utilised.

If the consumption of chlorine products bore the same proportion to the consumption of soda products as the chlorine does to the sodium in the salt, the future of the alkali trade would be less gloomy. The peculiar position of the soda industry since the development of the ammonia process is well known to the members of this Society from the paper read by Mr. W. Weldon before the London Section in 1883, and the address he delivered as President at Newcastle. In the latter, he threatened both the Leblanc and the Solvay process with extinction by a third process, which was being worked out by Messrs. Pechiney et Cie., at Salindres. I have not been able to ascertain what progress has been made by Messrs. Pechiney since 1884, nor has any further information been given to the world as to the commercial success of Mr. Mond's and Mr. Solvay's various methods for utilising the chlorine in combination with the manufacture of alkali by the ammonia process.

The beautiful process of Messrs. Carey, Gaskell, & Hunter for obtaining alkali by the decomposition of sulphate of sodium by bicarbonate of ammonia, or substituting salt-cake for salt in the ammonia process, with the consequent utilisation of the chlorine, is still in the experimental stage; but since the Newcastle meeting a new process for uniting the Leblanc and ammonia-soda manufactures has been patented by Messrs. Parnell & Simpson, and is about to be worked on a large scale by the Lancashire Alkali and Sulphur Company (Limited).

This process is based on the decomposition of a mixture of solutions of common salt and ammonium sulphide by means of carbonic acid gas, the result of which is that sodium bicarbonate is precipitated as in the ordinary ammonia process, and sulphuretted hydrogen gas evolved, ammonium chloride being left in solution. To recover the ammonium in the form of sulphide, the chloride solution is boiled with Leblanc alkali-waste, when a certain proportion of sulphuretted hydrogen gas is first evolved, and later ammonium sulphide and ammonia, which is condensed in brine for fresh treatment with carbonic acid gas. Since Leblanc alkali-waste is of no value, the advantages of this process over the ordinary ammonia process are—first, an entire saving of the lime used for the recovery of the ammonia in the latter process; and secondly, the recovery of the sulphur in the alkali-waste in a form that at all events can be employed for the manufacture of sulphuric acid. It will at once be seen that there are drawbacks to the employment of the dilute carbonic acid obtained from the limekilns in this process, partly on account of the portion of oxygen that the limekiln gas nearly always contains, which would cause an oxidation of a proportion of the ammonium sulphide, and partly from the difficulty of dealing with the dilute sulphuretted hydrogen that would be evolved after the treatment of the brine and ammonium sulphide. The patentees have several alternative plans of meeting this difficulty, but the one which they have decided to work, and for which they are now erecting plant, is the employment of pure carbonic acid gas obtained by heating and decomposing ammonium bicarbonate. The latter is produced in an ordinary Solvay tower by treating a saturated solution of ammonium carbonate with limekiln gas; the crystals of ammonium bicarbonate are drawn off into a suit-

able vessel and heated to a temperature of about 160° F., when nearly one equivalent of carbonic acid gas is driven off.

This gas after cooling contains only a fraction of a per cent. of ammonia, which is recovered in a wash tower in the usual way. The remaining solution of ammonium carbonate is then cooled, and returned to the towers for fresh treatment with limekiln gas, and thus the ammonia is kept constantly circulated. The carbonic acid thus produced is collected in a gas-holder for use in the ammonium sulphide tower, while the sulphuretted hydrogen evolved from the latter is collected in another gas-holder; this in both cases being necessary in order to have the process under proper control. It may at first appear that this preliminary preparation of pure carbonic acid gas will involve twice as much work in the towers as is the case in the ordinary ammonia process, and that consequently a greater loss of ammonia may be anticipated. The total amount of gas escaping, however, is only increased by the amount of sulphuretted hydrogen produced, or say about 25 per cent. of the total volume passed into the towers, so there is no serious ground for apprehension on this score. The ash produced by this process seems to be in no way inferior to that obtained by the ordinary ammonia process.

The process is very interesting both from a scientific and practical point of view, as it combines the Leblanc and ammonia processes, and proposes to recover the sulphur in the alkali-waste in a mercantile form, and so extinguish the nuisance from the waste heaps to which I have already alluded. But it has one defect, and that is it will produce a larger quantity of alkali, and this is serious, as there is apparently more produced at present than the market will bear. It is true the alkali made by the Leblanc method will take the form of caustic soda, and that by the decomposition of bicarbonate of ammonia the form of soda ash, but for every 70 tons of caustic soda we shall have an additional 100 tons of alkali.

It is clear therefore that if the process is successful, both the present ammonia-soda works and the Leblanc alkali works must still further reduce their output.

I have in the foregoing given a short account of the alkali industry in this neighbourhood, with its allied industries of copper and chlorine products. It has of course attracted round it other industries, such as the manufacture of glass and soap; but these are now principally in St. Helens, Warrington, and Widnes, whereas in Liverpool, where there were seven or eight soap works in 1827, there are now only two small ones.

At St. Helens, in 1829, the first alkali works was erected, and there were then only five small glass works; now there are eight alkali works, nine large glass works, four of them manufacturing plate glass. Of copper-smelting works there was only one in 1829; to-day there are five and two copper-extracting works, and the population has increased from 14,251 to 61,472 at the last census.

In Widnes the progress has been still greater, as its rise as a manufacturing town dates from about 1848, and it now contains fifteen alkali works, most of them of large size, four copper works, and the large soap works of Messrs. W. Gossage & Sons.

All this is now placed in jeopardy by the advance of chemical industry. Professor Dumas, in addressing the Société d'Encouragement pour l'Industrie, in 1860, at a time when by the Treaty of Commerce with England the French manufacturers were about to be brought into competition with their English rivals, made use of these remarkable words, which contain a great truth:—

“Europe has always accepted our supremacy in the chemical arts. Let us preserve it with care. It is by means of it, and of its unforeseen conquests, that the balance of trade is often overthrown.”

France since then has seen her supremacy in this particular direction rudely shaken by Germany, which has made enormous strides in all chemical manufactures.

We in England at that time thought ourselves quite safe from all foreign competition, but we are now also beginning to recognise that by the conquests of science the balance of trade may be altered. The Leblanc may have to succumb to the ammonia soda, and under these new conditions foreign countries are becoming less dependent upon us for alkali. If chloride of magnesium is used to replace salt as the raw material for chlorine, this great chemical industry will, of



necessity, have its seat in Stassfurt, and not in Lancashire. Mr. Levinstein, in a paper read before the Manchester Section, which has only just come into my hands, quotes from a speech by Professor Bayer (the discoverer of artificial indigo), in which the learned professor, after pointing out how Germany had succeeded by means of her intellectual achievements in wresting from France and England, countries superior in natural resources, a source of national wealth in the colour industry, and Mr. Levinstein seems to think that the English alkali manufacturers have contributed to this by asking too high a price for their products.

He seems to be of opinion that we in England are at the present moment unable to compete with the Germans in our own country, because for special reasons the prices of sulphuric acid and soda ash are dearer in England than in Germany. I have not had time to verify his statements so far as the price of alkali in Germany is concerned, but the fact that the German manufacturers sent a small parcel of caustic soda to England, and that ammonia soda of German make is offered in London at 5*l.* 10*s.* per ton, proves nothing. I have no doubt the Leblanc makers themselves would sell 58 per cent. soda ash in London at 5*l.* 10*s.* per ton, if they could not dispose of their alkali to better advantage in the shape of caustic soda, and it is well known that Messrs. Brunner, Mond & Co. are prepared to meet any competition of the German alkali manufacturers either in this country or abroad.

But Mr. Levinstein's second and more serious complaint refers to sulphuric acid. I think he rather exaggerates the advantages we possess in the price of the raw materials, pyrites and nitrate of soda, since freights to Antwerp are as low as to our own ports, and the internal carriage throughout Germany, whether by canal or railway, is very reasonable. Although German labour in this department is lower than in England, I think any of our large alkali manufacturers are able to make sulphuric acid as cheaply as his German rival, and if it pays the German manufacturers to deliver acid of 66 Beaumé at 3*l.* per ton, it can only be because the cost of delivering from the Griesheim works to Frankfurt is less than from the English works to the place where the acid is consumed. The question of transportation is a very serious one, and English manufacturers are undoubtedly heavily handicapped by the difficulties put in their way by the railway companies.

If the quantities of sulphuric and hydrochloric acids consumed in one German colour works are correctly given by Mr. Levinstein, the English alkali manufacturer will pray that several of these works may be erected in England, and so relieve the Leblanc makers of their acids.

As to the remedy, I quite agree with Mr. Levinstein, that it is not the theoretical chemist, but the chemical engineer that fails us.

The records of the progress of the alkali manufacture show that most of the processes now used are old, and that it is in the apparatus employed that the greatest improvements have been made; but while a few of our manufacturers have shown that they fully recognise this, it is very difficult to find a manager who has a knowledge of engineering combined with a knowledge of chemistry. Such men must be educated, and it is only now, after the Germans and French have shown the way for forty years, that we are beginning to follow in the path.

This laboratory in which we are met is but a sign of the movement that is in progress, and our Chair of Engineering in Liverpool has only been founded one year; but I look forward to the not distant day when by means of improved secondary education, and the work of institutions like Owens College, and University College, Liverpool, our manufacturers will be able to find men ready to carry on, with even greater success than in the past, a large portion of the great chemical industry of the world.

"WHAT is the matter?" asked an Austin doctor of a thin young man named Anderson Pye. "I think the climate of Austin does not agree with me—have great trouble breathing with my lungs." "You would have a great deal more trouble breathing without your lungs," responded the doctor. Whereupon Anderson Pye got up and adjourned; and now he tells everyone that the doctor does not understand his business.—*Texas Siftings.*

## AT THE COUNTER.

IN the far West this happened: A boy came into the drug store with a prescription for "Tinker of Low Bellie." Tincture of lobelia was dispensed.

\* \*

A DOUBTFUL TESTIMONIAL.—"My business being dull, I circulated a few sample bottles of your 'Heart-Disease Cure' among my townspeople. The grateful recipients now overrun me with orders."

\* \*

THE following are from the West of England:—1*l.* cistern of maginak. Eppeescuanna whine. Bosome of pivey, sewee ninter, tinches of ider, terperintime, toopeth each.

Please send one 1*l.* worth sipy dynment and one Stedment tooth in powder six months old.

W. J. F.

\* \*

THE following occurred in a chemist's shop in the neighbourhood of Liverpool. The wife of one of the merchant princes of that city entered and said: "Oh, Mr. R—, are not Epsom salts sold at 2 oz. for 1*l.*?" On receiving a reply in the affirmative, madame continued with a sweet smile, "Oh! then, I am entitled to an ounce for a halfpenny, as my daughter got an ounce yesterday and paid a penny for it." And she placed one halfpenny sterling on the counter as she took a seat and spread her silk robe around.

\* \*

"A ROSE BY ANY OTHER NAME," ETC. —A Scandinavian customer was having a liniment prepared by a drug clerk in the States, and calling for the ingredients by the five and ten cents worth. After it was supposed to be finished, corked, and delivered, he shook it up, looked at it, and said, "I will have five cents worth of *nail olea* put in." Clerk was dubious, and the Norwegian explained, "I don't know how you call it in English, it is oil of big nail." "Oil of big nail, oh! Is it oil of spike?" and he answered, "Oh, yes, that's it, oil of spike." *Druggists' Circular.*

\* \*

A PHYSICIAN prescribed beef tea for a patient, giving the following directions: Inclose the finely-chopped meat in a glass bottle, then boil by placing the whole in a pot of water. The directions were carried out as far as the boiling the bottle of meat in the pot of water was concerned. But instead of then mixing the finely-chopped boiled meat with the water and giving it to the patient, the lady gave the sick person the hot water in which the bottle was boiled, who said that she hadn't tasted anything so good in a long time.

\* \*

A CHEMIST friend of ours recently sold a glass measure graduated for tea and table spoonfuls. His customer, a lady, returned with it next day, and lodged a complaint against its accuracy. She understood, she said, that 60 drops were equal to a teaspoonful; she had dropped 60 drops into the measure to test it, but they did not correspond to the mark; she then tried a teaspoon, but that too was at variance. In neither case did the measure hold enough—it *must* be wrong. Some explanation followed, and the lady appeared to grasp the situation. Probably she now uses the measure to test her spoons.

\* \*

"PEEP O' DAY" tells us the following incident:—Sunday morning; Mr. K. gone to church. Mrs. K. answers the door to a youth who wants three leeches. Mrs. K.—"Mr. K. is out and I am afraid of them. You may take them from the aquarium if you like, and I will give you a box." Youth takes what he requires, pays, and departs. Evening; Mr. K. at home. Enter youth.—"If you please, Mr. K., these leeches will not take." Mr. K.—"Indeed! They must be quite healthy too. There should be no difficulty." Youth—"We have tried them over and over again. We cannot even get them to come out of their shells." Mr. K. tumbles at once. The youth had taken trumpet snails instead of leeches.



## Veterinary Treatment.

### WORMS IN DOGS.

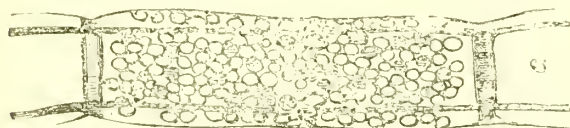
HOW many dogs suffer from worms? Who shall say that any one dog does not; or, if he does not suffer from them, he is the unwilling host of some one or other of the many forms of uninvited guests which are commonly called worms.

The study of worms, though not attractive to the ordinary reader, has formed the life work of some of our most scientific and painstaking savants, among whom the late Dr. Cobbold, Professor of Helminthology at the Royal Veterinary College, held the first rank, if not the first place, in Europe. To him we are largely indebted for a knowledge of the life-history of many parasites which were hitherto unknown except in their mature state. Those who knew him personally were privileged to see many curious things, such as incubators and other apparatus carried about the body for the hatching of various obscure parasites, whose family affairs were not known or required clearing up upon some point or other. Those readers who wish to go into the subject thoroughly can do so by obtaining Dr. Cobbold's work on the parasites of man and animals, where he can see a description of the parasites of the American red fox or the deadly heart-worm of Japan, nothing escaping the observation of the author.

The mere classification of parasites and their scientific nomenclature is not of much practical value, but it is interesting to know that, by keeping our domestic animals free from worms, we are diminishing the risk to ourselves. It is not generally known that tapeworms, for instance, may at one stage of their existence inhabit the brain of a sheep, and at another the bowels of a man or a dog; or the reverse may be the case.

Take the common tapeworm of the dog (*Cenurus cerebralis*). Suppose a dog having a mature tapeworm of this order within his bowels. Each segment of the worm is practically a separate individual, or zooid, and capable of producing 30,000 eggs.

To be scientifically exact, it should be stated that the segments have sexual organs of both kinds, but, like other hermaphrodites, cannot impregnate themselves, but rely upon

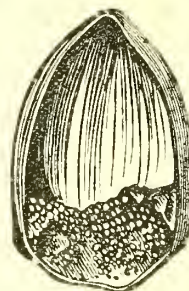


SEGMENT OR ZOOID.

the folding over of other segments for the mutual fecundation of the many parts of the chain which we call in its entirety a worm, but which is, more properly speaking, a colony of zooids.

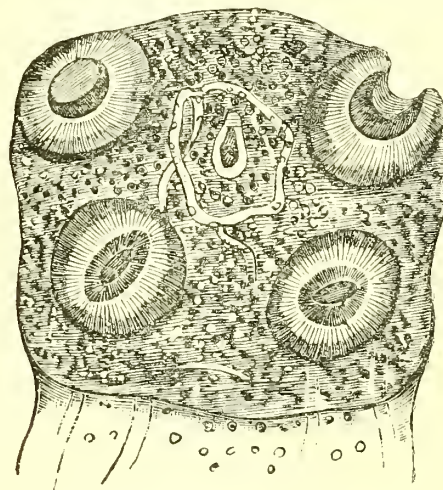
We have said that each segment is capable of producing 30,000 eggs, many of which are lost, digested, and otherwise disposed of, but a fair proportion of them are passed out with the faeces of the dog and fall upon the grass, which the sheep afterwards consumes. If upon the grass consumed the sheep has thus conveyed to his stomach the tapeworm egg, it soon feels the change, and the shell or outer covering is cast off, and a six-hooked embryo is hatched out, but does not immediately become a tapeworm. It first bores its way through the mucous lining of the stomach, or intestines, and so obtains access to the circulating blood; finding itself in the stream, it lets go its moorings, and makes the round of the body, till it establishes itself within the brain of its victim, where it anchors and takes up its permanent abode, causing by its presence a degree of inflammation which results in the formation of a cyst or watery bladder. It is during the formation and development of this cyst in the sheep's brain that the animal's behaviour is so eccentric. Those who are familiar with sheep may have seen one suddenly spin round and round till he falls exhausted upon the ground. This disease is well known to shepherds in most countries, though it is difficult to make them understand the real nature of the "bladders." Many of them cure it by passing a wire up the nose and through the sinuses, where, if the cyst happens to

be in the anterior part of the brain, the wire ruptures it and absorption follows. This is doubtless very rough surgery,



HYDATID OR CYST, SHOWING IMMATURE HEADS OF TAPEWORM.

but it frequently succeeds, and it would not pay the owner to call in a veterinary surgeon unless a large number were affected. But to return to the development of the parasite, and not its effect upon the host. If the cyst remains unoperated upon by the shepherd—and this is the rule—the animal eventually comes to the shambles. Often he is hurried there on account of his having the gid, or sturdy, or turnsick, as it is variously called, and the brain is found damaged by the bladder, and is thrown away or given to the dog. The dog swallows the cyst or a part of it, and at once develops tapeworm, as the lining membrane of the cyst was covered with the immature heads of the parasite which would never have undergone any further development in the "intermediary bearer," as the sheep would in this case be called. But once swallowed by the dog they attach themselves to the intestine by their sucker-like head, and segment



MATURE HEAD OF TAPEWORM, SHOWING SUCKERS.

after segment is developed in a marvelously short space of time, and each segment, like its grandparent, becomes capable of the same rapid propagation of eggs. "The vilest things do fastest propagate," wrote Shakespeare, before microscopes were in use.

If instead of the egg upon the grass we place the egg upon the watercress, the radish, or the spring-onion, the lettuce, or the cucumber, we can readily account for the introduction into the human body of the egg, its development into the cyst, and the terrible effects it produces. On the other hand, those who consume half-cooked meat may swallow the immature worm in the cysts and develop tapeworm in the bowels. It is a remarkable fact that parasitism in man has never received the attention from the faculty that it deserves, and many herbalists and other irregular practitioners have built up a reputation by the diagnosis of such cases, and the boldness with which they have treated them. There are a great many more deaths from worms than from hydrophobia, and yet the public hears nothing of them.

The following is a statement of the number of deaths from



worms as recorded by the Registrar-General for England and Wales:—

1838	1839	1870	1871	1872	1873	1874	1875	1876	1877
FROM ALL KINDS OF PARASITES.									
172	148	151	160	154	133	188	227	204	225
FROM TAPE WORM ALONE.									
6	2	7	1	4	2	—	5	2	3
FROM CYSTS OR HYDATIDS.									
8	3	6	3	5	3	5	5	2	6

If, then, all these deaths actually certified and brought before the Registrar-General occur, how many more must occur where no post-mortem examination is made; and what a still larger number of persons suffer for years from the presence of worms in their hydrated or mature form.

We have said enough, then, to show the great importance that attaches to the subject of worms in man and in animals. It is more strictly our province to deal with the parasites of animals, but the veterinary practitioner and the doctor of man must work together in this matter, and parasitism would be reduced to a minimum. If every owner of a dog makes it his business to purge his dog from worms, he will save himself and his neighbours from the danger of hydatids of one class at least, not to mention his neighbour's sheep and his neighbour's dog.

Parasites generally obtain admission in the system by improper diet and neglect. It has been said that dirt favours the development of every kind of parasite, and, although in helminthology the broad distinction is made between ectozoa and entozoa—outside and inside guests—the one is often dependent on the other, as in another common form of tapeworm found in the dog. The *Tenia cucumerina* passes its hydatid, cystic, or intermediate life in the dog-louse. The dirty uncared-for animal carries upon his back the louse that is ready to devour the eggs as they accumulate round the anus of the dog. The cyst, which is necessarily a very small one, forms on the louse; the dog bites himself to allay irritation of the skin, swallows the cyst with the louse, and the process of developing tapeworm goes on. As long, therefore, as he maintains vermin on his back, he will continue to cultivate tapeworm in his bowels.

Fortunately there are reliable remedies for the expulsion of tapeworm, and in the dog success may be almost assured with areca-nut. Tison's Veterinary Pharmacopoeia gives the dose as 2 grains for each pound weight of the dog, but a much larger quantity may be safely given. It is essential that the stomach and bowels should contain but very little food at the time of administration, and some veterinary surgeons give a dose of castor oil first in order to clear the intestines from anything but the natural juices.

The frequent failure of areca-nut is due to the drug being stale. It may be chemically the same, whatever its age, but experience proves that the amateur who buys a nut and grates it up himself gets a more certain result than he who buys the fine powder of the shops. Whether or no there is an evanescent principle in the nut which is lost in grinding and keeping, we cannot say; but of the result we can speak positively. Of dolichos, buch, santoline, and powdered glass we propose to speak in treating of other worms, but for the tapeworm tribe good fresh areca, preceded or followed by an aperient, is not to be equalled.

Ol. Filicis Maris is almost always vomited, and is for that reason not a desirable remedy.

The treatment of hydatids, or the bladder-worms, is, alas! of very little avail. Except on the sheep, it is difficult to diagnose. Many a man has gone to his account with a long scientific name on his death certificate and a cyst on his brain which during life could never be distinguished from the pressure of a brain tumour or other morbid condition. If, as is usually the case, the cyst occupies a position in the cortical or outer layer of the brain, its removal by trephining is comparatively safe; but, as before hinted, the difficulty of diagnosis prevents many cures being effected in man which can be accomplished in animals, whose carcasses are valued according to their bulk in pounds avoirdupois, should they happen to snuff out in the operation. It is one of the few advantages animal doctors possess; they are not always in dread of violating the sanctity of human life or opposed by the sentiment of near relations.

## MAIZE OIL.

A PAPER on this oil was read by Dr. C. O. Curtman before the Missouri State Pharmaceutical Association, in which we have further particulars. The oil is made largely by the Woodchande Milling Company, St. Louis. The amount of oil obtained by pressure from the embryo varies from 13 to 15 per cent. The following notes by Dr. Curtman, which we abstract from the *Pharmaceutical Record*, though agreeing generally with the conclusions of Mr. Shuttleworth (published in this Journal, p. 47 of current volume), differ in some respects, while fuller particulars are given on other points:—

The crude oil, as first expressed, is somewhat turbid and of a pale brownish yellow-colour. It is easily rendered clear by filtration, or by letting it stand at rest for some weeks, and drawing off the clear oil on top from the impurities which have subsided.

Its average specific gravity is 0.916. The extremes, thus far observed, were 0.915 and 0.917. Maize oil has the peculiar flavour of freshly ground corn meal. This becomes fainter by age and may be removed to a considerable extent by rectification processes. Its taste is bland and of agreeable sweetness, with a bitterish after-taste, which increases somewhat with age, but may be entirely removed by purification. It does not very readily become rancid, when carefully kept, in this respect resembling benne oil. It does not dry like linseed oil. Portions left adhering to the outside of a vessel, from which it has been poured, have not become pasty nor rancid in twelve months.

In some of its general properties it stands intermediate between olive oil and oil of sweet almonds, but approaches nearest to the olive oil. It contains a large proportion of oleine, a compound of oleic acid and glycerine.

With Pontet's reagent (strong nitric acid in which a little mercury has been dissolved), it forms an abundance of claidine, so as to become nearly as solid as olive oil. Treated with mercuric nitrate in the usual way, it yields a fine citrine ointment. With strong nitric acid it speedily turns a dark reddish brown, a reaction which is obtained still more rapidly and intensely by using a mixture of strong sulphuric and nitric acids. This reaction is, however, limited to a much paler colour after the oil has been rectified by treatment with sulphuric acid.

With alkaline lyes it saponifies promptly, forming a beautiful white soap, fully equal in appearance to the best castile soap from olive oil. With aqua ammonia a liniment is formed, which remains sufficiently fluid at ordinary temperatures. Boiled with litharge the oil yields lead plaster and glycerine.

One of the most remarkable properties of the oil, by means of which it may be distinguished from similar oils, is its low congealing-point. Olive oil begins to congeal and become turbid at +10° C. (50° F.). Cotton seed oil at +2° C. (35.6° F.). Oil of benne at —5° C. (+23° F.). Almond oil at —20° C. (—4° F.).

Maize oil is intermediate between the two last. It remains entirely clear down to —8° C. (+17.6° F.); below that it begins to get slightly turbid, but is not fully congealed at —10° C. (+14° F.).

The properties above stated render it a valuable substitute for olive oil in pharmaceutical preparations. Its odour being but slight, and not very penetrating, is easily overcome by essential oils, and on this account the oil may be used for toilet preparations.

"I WANT some preserves on my bread," whined a boy to his mother. "Johnny," coaxed the mother, "that nice butter and sugar is the thing for little boys." "Wow, wow," he howled, "I won't have it. 'Taint nothing but glucose an' l'oleomargarine, and it's pizen. Gimme preserves if you don't want your little boy to die." He got the preserves.

It is reported that his satanic majesty, while on a recent visit to this planet for a cargo of sulphur, was shown a sample of iodoform. He immediately countermanded the sulphur order, and substituted iodoform, saying, "Not in all my realms below does any perfume so please my senses." In other words, the odour of iodoform beats sheol.—*Canad. Med.-Surg. Rep.*



## COLOURS AND FILTERS.

IT is probable that many chemists are shareholders in, and certainly many more are customers of, the firm of Daniel Judson & Son (Limited), whose enterprise and ingenuity have long been notorious in the trade. To such it may be that a short account of the business as it is carried on at headquarters may not be without interest.

When we called for the purpose of making a few notes, we found Mr. Judson, the managing director, absent in America. We understood that his trip across the Atlantic had been undertaken with a view of establishing a branch of the concern in the United States, a step suggested, it may be, by the occasional incursions of American houses engaged in more or less similar businesses into this territory. Mr. Judson's absence, however, made no difference in the courtesy of the reception accorded to us, nor in the facilities afforded us.

Messrs. Judson's factory is a four-storeyed building in Southwark Street, one of the busiest thoroughfares on the Surrey side of the Thames, and starting from the top floor we first take a glimpse of the extensive range of dingy roofs and chimneys commanded therefrom. This top floor is devoted to the manufacture of gold and silver paint, and several youths were engaged in the task of putting up these paints in bottles, while others were occupied in labelling and capsuling them. These gold and silver paints form one of the principal lines now carried on by Messrs. Judson, and sell in large quantities, the gold paint being much more extensively used than the silver. On this floor the aniline colours, which have made the name of Judson famous, are also put up, and we were shown some extremely neat tin boxes, ranging in price from 5s. to 21s., containing tubes of colours for velvet painting, a pastime which, from our guide's observations, seems to have found considerable favour with the fairer portion of the upper classes of late. In the aniline dyes of the cheaper kinds Germany is a serious competitor, but the Messrs. Judson are well able to hold their own, and even to sell to America, notwithstanding the high duty in the United States. In contrast with the glittering gold and silver paints, stands the "artists' black, another preparation put up on the same floor, and especially suited for painting picture-frames, wicker-work, chairs, &c. Messrs. Judson are also developing a trade in marking-ink, for the sale of which they have designed an ingenious automatic stock and show case, from which the seller can take out one article without disturbing the stock generally. We found on another part of this spacious and busy floor a group of boys packing the appropriately named "Krokum" insect-powder. In reply to our inquiry where the firm might buy the immense quantity of bottles required for their specialties, we were told, "We were accustomed to buy our bottles from the manufacturers, but we thought we could do better by making them ourselves, and consequently we built a factory in the Old Kent Road, where all the bottles you see here (pointing to a large number of hampers and cases around) are manufactured. Besides these, we manufacture our own glass filters which will be shown you by-and-by." Luminous paint (Balmain's patent), paint cleaner, silverine (a poisonous liquid for cleaning brass and silver ware), and other preparations are also got ready for sale on this lively top floor. Just below is a floor devoted to glues, gums, and cements. Various cements with wonderful qualities were shown to us. Among the novelties lately introduced by the firm is a small japanned pail, holding 3 pots containing gum, glue, and cement. "These," our cicerone says, motioning towards a few large casks standing in a corner, "contain our mineral gum, of which we sell large quantities in 6d. bottles." We failed to ascertain what mineral it was that yields this gum, but our guide and the foreman of the floor valiantly maintained that the article is derived from a mineral. Part of this floor is set aside as a drugroom. Messrs. Judson do a considerable export trade, partly through shippers and partly direct. Among their best foreign customers are the Australian Colonies, where they have agencies of their own, and also the United States and Canada. The second floor of the establishment is devoted to combs, perfumes, sachets in coloured plush (our guide, in showing these, took occasion to acknowledge his indebtedness to the formula published

some time ago in this Journal), and sponges. Most of the latter are Mediterranean, for which the demand is larger than for Bahamas, although the latter quality also is kept in stock. Passing by the managing director's rooms and the show-room on the first floor, we again reach the ground floor, partly used as offices and partly devoted to the putting up of aniline dyes. Messrs. Judson have a separate warehouse for the sale of drysalteries in bulk, which was their original business. A few hundred yards from the paint warehouse there is another building, larger than the former, and entirely devoted to the filter business. On the way we asked whether the firm were represented at any of the exhibitions now being held. "At Edinburgh we are," was the reply, "but not at Liverpool. We tried to get a stand at South Kensington, but they wouldn't admit us because of our not being a Colonial firm, though (sarcastically) they did not mind giving a stand to a foreign filter-maker who has no connection whatever with India or the Colonies. But we don't mind it much. We have a perpetual exhibit at South Kensington in the fountain we erected at the Inventions Exhibition. We gave away 100,000 Japanese fans with our advertisement at the Inventions, and that paid us well we think. We are now considering another plan for an advertisement which we think will be quite a good hit." Mr. Judson, we were informed, has just made arrangements to establish a filter factory in the United States. Spain was stated to be a good country in which to push this trade. The Spaniards buy the charge and part of the filters from Messrs. Judson, the rest—case, &c.—they make there, paying a royalty on each filter.

Arrived at the warehouse we found on the lower floor a show-room, where "perfect purity" and "aqua pura" filters, made in glass, terra-cotta, china, or cheap stoneware, are shown. The most expensive filters are of white china, and are made at Longton, in Staffordshire, where the handsome terra-cotta filters, particularly suitable for hot climates, are also manufactured. Glasgow furnishes the stoneware filters. The cheap earthenware are got from Brompton, near Chesterfield, and the glass filters are made at the firm's own works in the Old Kent Road. The filters are the patent of a Mr. Knight, a former manager of this branch of the business. The charge consists of asbestos, carbon, and a mixture of which iron forms the principal part, and is manufactured on the premises. This mixture is tightly pressed in Morgan crucibles, closed hermetically, heated during twenty-four hours in a furnace; and, to give an idea of the quantity used we may mention the statement of our guide that one hundred crucibles, each of 28 lbs. capacity, are placed in the furnace every Saturday. The crucibles last about six weeks. The cheap earthenware "aqua pura" filters sell most, next come the stoneware and china, the glass filters are least in request.

Evidently the business is a flourishing one, and, with plenty of spirit to take hold of new ideas as they occur, would seem likely to continue so. If the balance-sheets are turned out as stylishly as the products of the firm generally, the shareholders will have no more reason to complain than the public have at present.

## A MEDICAL OPINION OF COUNTER PRESCRIBING.

It is seldom that we find in the medical press charitable reference to the position of the chemist as regards counter prescribing; the chemist is generally regarded as the cause of the evil, and little attention is paid to what we may conveniently call the extenuating circumstances of the case. A writer in the *Medical and Surgical Reporter* says:—"That some prescribing, outside of that done by physicians, is indispensable in the present age, is shown by the vast number of recipes for 'cures' of different kinds published in the family newspaper, and by the great number of such clippings carried about in pocket-books. A large number of persons will not call upon a physician for advice unless they are sick enough to go to bed. And is it to be wondered at? Do not these same people do their own repairing in many other ways; patch their own clothes, darn their own stockings, repair their own harness, do odd jobs of painting, carpenter work, paper-hanging, and a thousand other kinds of mending? It is therefore not surprising that they should occasionally try an odd job of repairing the human form divine."





*The following applications for Patents have been registered at the Patent Office.*

**Acid, Sulphuric.**—8971.—July 9, 1886.—S. B. Bowen. Improvements in apparatus for the concentration of sulphuric acid.

**Alkalies.**—9032.—July 10, 1886.—J. Marx. Improvements in the manufacture of alkalies.

**Ammonia.**—9208.—July 15, 1886.—H. Wade Deacon and F. Hurter. Improvements in apparatus for producing ammonia from sulphate of ammonia.

**Barometers.**—9112.—July 13, 1886.—D. Winstanley. Improvements in the "Cartesian Barometer."

**Blackening.**—9004.—July 10, 1886.—E. O. Eaton. Improved blackening and varnish.

**Bottles.**—9144.—July 13, 1886.—J. Thompson. Improvements in apparatus for filling bottles and other vessels. —9190.—July 15, 1886.—J. Bedford. Improvements in ball stoppers for bottles. —9197.—July 15, 1886.—F. C. Tomkinson. Improvements relating to boxes or cases for stoppered and other bottles. —9157.—July 14, 1886.—H. E. Cotton Way. An improvement in bottles for containing aerated waters and spirits. —9211.—July 15, 1886.—T. E. Harper. Improvements in the manufacture of bottles and tools or apparatus for same.

**Corks.**—9154.—July 14, 1886.—R. Irvine. Improvements in the manufacture of corks, bungs, &c.

**Dye-stuffs.**—8992.—July 9, 1886.—C. D. Abel. Improvements in the production of green colouring matters or dye-stuffs.

**Freezing Liquid.**—9220.—July 15, 1886.—E. Edwards. A new or improved volatile liquid especially applicable for use in ice-making, &c.

**Gums and Resins.**—9027.—July 10, 1886.—E. Schaal. Process for the production of resin-acid esters applicable as substitutes for the resins or gums usually employed in the manufacture of varnishes and lacquers.

**Medical Chair.**—9230.—July 15, 1886.—F. Sharpe. A chair with electrical appliance adapted thereto for medical and other purposes.

**Oils, Burning.**—9025.—July 10, 1886.—C. Oswald. Improvements in burning inflammable oils, &c.

**Paraffin Wax.**—8948.—July 9, 1886.—R. Tervet and F. Alison. Improvements in treating and purifying paraffin wax, and in apparatus therefor.

**Photographic Plates.**—8972.—July 9, 1886.—M. P. Ismay and E. Dodds. Improvements in apparatus for coating photographic plates.

**Skin Potion.**—9167.—July 14, 1886.—Sarah A. Perry. A potion for improving the skin and complexion.

**Soap Economiser.**—8945.—July 9, 1886.—R. Bradshaw. An improved soap economiser.

**Stethoscopes.**—9087.—July 12, 1886.—J. Arnold. Improvements in stethoscopes.

**Syphon.**—9194.—July 15, 1886.—E. Fulton, J. McCue, and M. McDonald. An apparatus for tilting or raising beer or other liquids contained in casks or barrels whereby the beer or other liquids may be drawn off without being disturbed or shaken up.

**Ultramarine.**—9176.—July 14, 1886.—Léon J. B. A. J. Bouillet. Improvements in the manufacture of ultramarine and in furnaces or ovens and apparatus to be used in this manufacture.

**Water.**—9227.—July 15, 1886.—J. S. Sawrey. Improvements in means for softening and purifying water.

*The following Patents have become void through non-payment of renewal fees.*

1,126. R. T. Dossett. Colouring capsules.

1,148. W. E. Newton. (*Cherniac & Another.*) Manufacturing sulpho-cyanides, &c.

1,246. C. Milton. (*Winstanley.*) Thermometers.

1,261. H. E. Newton. (*De Günzburg & Another.*) Manufacture of sulpho-cyanides, &c.

1,282. C. Thomas and others. Recovery of glycerine from soap leys.

1,346. C. M. Taylor. Bottles and capsules for same.

1,359. H. E. Newton. Manufacturing sulpho-cyanides, &c.

1,408. F. Kingston. Instrument for administration of food to the stomach.

1,412. J. Shanks. Fastenings for securing the stoppers of bottles.

1,429. C. T. Wordsworth and another. Raising and forcing chemicals, &c.

1,450. H. H. Lake. (*Musitzky.*) Syphon-bottles for aerated beverages.

1,458. L. A. Groth. (*Hosemann.*) Composition for rendering materials unflammable.

1,477. R. H. Brandon. Production of a factitious material to imitate ivory.

1,511. J. Heaps. Packing bottles.

1,567. E. Kunkler. Concentrated milk.

1,569. W. Von Schlieffen. Stoppers for bottles, &c.

1,578. W. R. Lake. (*Cooper & Another.*) Administering anaesthetics, &c.

1,597. H. J. West. Stoppers, &c., of syphon bottles.

1,604. C. Scott. Vaporising fluids.

1,627. B. Tillett. Separating metallic bodies from earths.

1,698. M. I. Verkouteren. Boxes for samples.

1,706. C. M. Pielsticker. Continuous distillation, &c. of oils, &c.

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8,400. A. J. T. Wild. Manufacturing bottle necks. 8*d.*

8,482. F. W. Holloway. Salts for baths, &c. 4*d.*

8,870. A. M. A. Fournet, and W. C. Wood. Instruments for establishing the refractive errors of the eye. 11*d.*

9,202. G. L. Johnson. Spectacle frames. 8*d.*

9,204. D. K. Clark, and W. J. E. Foakes. Filter presses. 8*d.*

9,331. W. Watson. Preparing medicines. 6*d.*

9,493. C. Benson and J. W. Garrett. Extracting oil from seed in manufacturing cake. 6*d.*

9,959. A. Bell. Filters. 8*d.*

10,044. W. Dodshon. Preventing, &c. sea-sickness. 11*d.*

10,130. H. H. Lake. (*Collin & Co.*) Antiseptic. 4*d.*

10,139. J. K. Field. Treating hydro-carbon bodies. 6*d.*

10,377. W. Clark. Producing colouring matters. 4*d.*

10,541. D. W. Bell. Bottles, &c. 4*d.*

11,681. H. Cochrane. Aerated liquids. 4*d.*

13,761. G. W. Bremner. Treating chemical agents, &c. 6*d.*





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**EDITORIAL NOTES.**

**THE ALKALI INDUSTRY.**

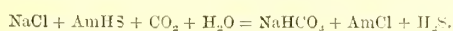
ONCE again the chemical world has had told to it the history of the alkali spectre; now the story seems even more gloomy than it was three years ago when the late Mr. Walter Weldon was the narrator; then impending fall was indicated, now slow and miserable starvation seems to be the burden of the story. Mr. Muspratt's address to the Society of Chemical Industry at Liverpool last week, though deficient in the dramatic element which characterised Mr. Weldon's lecture, is not less interesting. It is a review, mainly historical and statistical, of the alkali industry from the beginning of this century until the present time, and deals more particularly with the Liverpool district, whereas Mr. Weldon's referred to the Tyne trade. Both districts have experienced the same vicissitudes, the latter to a greater extent, perhaps, from the fact that it is not so favourably situated as the former for supply of the raw material; but the same halo of romance encircles both: we have lives and fortunes lost, reputations and fortunes made, in the west as well as in the east. At present the wealth which is buried in the industry is enormous, and it is undeniable that there is much wisdom in the statesman's aphorism, "Keep your eye on chemicals." It is noteworthy that some important epochs of the alkali industry reflect the disastrous results of the want of business tact. How much alkali makers in this country have benefited by the outrageous sulphur monopoly granted by the King of Sicily to the French it would be difficult to estimate. Practically the difference in value between the sulphur unit then and now is trifling, but the enterprise which the monopoly helped to develop, and the new industries which have been fostered, are results which have had a wider influence than at first sight appears. They helped to spread that spirit of investigation and love of discovery the results of which have so largely ensured the undoubted success of the Le Blanc process. The manufacture of bleach, Weldon's manganese recovery process, the revolving furnace, and many other creations and improvements are more the result of the



struggle for existence than of any pronounced desire for improvements.

Like Mr. Weldon, Mr. Muspratt holds out little hope for the survival of the Le Blanc process; at present it is handicapped by old plant and non-utilisation of by-products. But it is a question with Le Blanc manufacturers whether they would be much better off with the ammonia or any other process; if by the touch of some magic wand they could convert their patched-up half-century-old plant into that of the most recent model, then, they maintain, they could hold their own. Those who visited the works of Messrs. Gaskell, Deacon & Co. on Friday last saw an excellent example of what the Le Blanc process is capable of. In their works primitive machinery stands side by side with that a few years old. There the most noteworthy objects were the revolving furnaces, by which the manufacturers are enabled to save an immense quantity of fuel and manual labour, one furnace doing as much as nine or ten times more work per day than the old-fashioned reverberatory furnace. Next there is Deacon's chlorine process, in which the use of manganese is done away with. This process is a very interesting one. The hydrochloric acid from the salt-cake chambers is conveyed to a series of towers, where it meets a supply of air, which by the intervention of a copper salt splits up the acid, the hydrogen uniting with the oxygen of the air to form water, and the chlorine, after being washed with water, passes directly to the lime chambers, devised by Deacon, and is converted into chlorinated lime; these chambers are worked with very little trouble, and yield a product much superior to that prepared by the old process. Then there is the use of centrifugal force for the purpose of freeing crystal carbonate from excess water, and the employment of revolving carbonaters, which have reduced the time required for making bicarbonate of soda from two months to ten hours. It is undoubtedly by the employment of such means only that the Le Blanc process may hope to live, and, although at present confident makers say that with perfected plant they would get on well enough, we cannot overlook the fact that anyone fitting up a new factory with Le Blanc plant would be considered insane.

The ammonia process has developed considerably since Mr. Weldon spoke of it three years ago, and no one doubts its possibilities for the future. Now, however, a new process has come into the field which is not so antagonistic to the Le Blanc method as the ammonium carbonate method is. In the new process mixed solutions of common salt and of ammonium sulphide are charged with carbonic acid gas, when the following reaction takes place:—



The ammonium chloride here remains in solution, the bicarbonate of soda is precipitated as in Solvay's process, and the sulphuretted hydrogen may readily be split up into free sulphur and water by oxidation. But the interesting fact in the new process remains to be told. In order to convert the ammonia into sulphide, it is proposed to heat it with Le Blanc waste, which contains practically all the sulphur employed in the process, and the existence of which is a terrible nuisance. This waste consists mainly of calcium sulphides and oxide. Consequently when ammonium chloride is boiled with it, a little sulphuretted hydrogen is first given off, and finally ammonium sulphide and hydrate from double decomposition. This appears to be a very excellent process; there are many difficulties to be encountered before it works very satisfactorily, but these, as far as known, have been anticipated by the patentees, Messrs. Parnell & Simpson. One satisfactory feature about it is the utilisation of the Le Blanc waste, and as long as the new process lasts we may expect that the time-honoured process will not become extinct.

Apart from all questions as to which is the best process and what may be remunerative prices, it must not be forgotten that the alkali trade, like every other industry, is suffering from the present depression. That over-production is not the cause of it is well proved by the fact that there is never in our markets more than a fortnight's supply of bleach, yet the price is low. Makers have brought down production to the lowest point possible, and with that prices have gone down. But it is the same in all our industries, particularly in the manufacture of textile fabrics, which is so closely related to the alkali industry. Here also prices are ruinous, but it may be that the long anticipated wave of improved trade will dispel the existing gloom in the alkali trade as one of its earliest effects.

## PHARMACISTS AND THE LIQUOR TRADE.

HAD the late Parliament been prolonged another month it is possible that a Bill containing a clause of the utmost importance to pharmacists would have been read a second time. That the clause we refer to would have passed through Committee is not at all probable; but as we shall almost certainly hear of it again, we may take this opportunity of describing it.

For many years endeavours have been made by sections of the temperance party to pass the control of the liquor traffic into the hands of the people. The Permissive Bill and Local Option Resolutions are cases in point. The term which now finds favour is "Local Veto," the particular Bill dealing with the question of the year having been entitled "Liquor Traffic Local Veto (Scotland) Bill." The Bill was in charge of Mr. P. MacLagan, and, as the principle had been endorsed in the old Parliament, it was confidently hoped that in some form or another an Act embodying that principle would have been placed on the statute-book this year. Without doubt it will be again pressed forward as soon as opportunity occurs.

Clause 9 of Mr. MacLagan's Local Veto Bill provides that from the date when it comes into operation "it shall not be lawful to sell, or barter, or hawk, or otherwise dispose of any intoxicating liquors . . . provided that nothing herein contained shall be held to affect any sale made under any statute permitting the sale of methylated spirits for use in the arts and manufactures, or the sale of intoxicating liquors for medicinal use; provided also that it shall not be lawful for any person to sell any intoxicating liquors for medicinal use except on the prescription of a legally-qualified medical practitioner, and unless he is a pharmaceutical chemist, or a chemist and druggist registered under the Pharmacy Act, 1868, or any Act amending the same: and it shall not be lawful to sell any intoxicating liquors for medicinal use unless the bottle or other vessel in which such intoxicating liquor is contained be distinctly labelled with the words "Intoxicating Liquors," and the name and address of the seller: and any person selling intoxicating liquor for medicinal use otherwise than is herein provided shall be liable to a penalty not exceeding *five pounds* for the first offence; and not exceeding *ten pounds* for the second or any subsequent offence; and for the purposes of this Act the person on whose behalf any sale is made by any apprentice or servant shall be deemed to be the seller."

The startling nature of this proposal is not modified when we look more closely into it. With the highest esteem for the motives and the labours of the temperance party, and without concerning ourselves about the difficulty of dispossessing the present dealers in liquors, we are compelled



to regard the clause we have quoted as utterly crude and unworkable from the point of view of pharmacists, who would be reluctant to turn their respectable drug shops into she-beens. The one thing absolutely essential to the carrying out of this clause is just what British pharmacists will never submit to, viz. police inspection. Without this the provision would in many cases be a dead letter; with it the great bulk of the trade would refuse to have anything to do with the traffic. In addition to this obstacle numerous objections suggest themselves. Are all pharmacists to be allowed to sell liquor, or only a select few, as in many parts of the United States? If the former, would it be to the advantage of pharmacy that hundreds of shops should be opened by the surplus stock of assistants now on our hands? If the latter, the Bill is silent on the point who is to apportion the licences. Then what about the repetition of prescriptions, and the probability of every little town having its doctor whose prescriptions for liquor could be had at so much each, as we are informed has been the case in Canada and the States?

Canada has frequently been quoted as affording a happy example of the manner in which local veto legislation may be enforced. We have received testimony from the temperance authorities to the loyal spirit in which druggists in the Dominion have carried out their part of the well known Scott Act. But druggists' opinions in the matter are also to be taken into account. The *Canadian Pharmaceutical Journal* prints in a recent number the views of a large number of prominent druggists who have had experience of the measure. Over 90 per cent. of the opinions are decidedly unfavourable to the Act, and "in the case of those druggists possessing licences the measure is not considered as producing any good result to the drug trade, but, on the contrary, being positively debasing and hurtful." So injurious has been the working of the Act on certain classes of druggists that an amending Act has already been brought in by the Attorney-General. In other districts, on the other hand, where the population is more scanty, better results have been obtained, as was to be expected.

A Canadian correspondent who writes in the temperance interest intimates that certain doctors had rather lax notions in the matter of prescribing. "The first experience of the operations of the Act brought to light a remarkable record of the generous prescription of alcoholics by careless, reckless, and good-natured physicians. The provision for publishing a return of all such prescriptions with name of patient, doctor and druggist, disease, quantity of alcoholics prescribed, and exact quantity supplied produced a revelation which all parties concerned instinctively shrank from. Practically this provision proved a great success, and in the case of the county named all returns subsequent to the first have been so light and unobjectionable that the most ultra-Scott men have passed them without comment." This quotation alone suffices to show how far Britons are from being ripe for any such legislation as has been suggested.

In those sections of the United States where veto legislation has been adopted we find the pharmacists opposed to the liquor laws almost to a man. At the recent meeting of the Kansas Pharmaceutical Association, Mr. Lawrence read a paper with the suggestive title "Druggists or Saloon Keepers." Mr. Lawrence had corresponded with a large number of druggists, and got replies from twenty-three towns and cities, the population of which aggregated about half a million. Out of all his replies not one was of opinion that the present law was satisfactory. "The fact remains," writes one, "that in places where the temperance sentiment has been strong enough to keep the sale of liquors confined to the drug-stores will be found the greatest abuses, and the

better class of druggists the most clamorous for relief." "Quite a number of conscientious druggists, seeing the tendencies of the present system, and realising the impossibility of selling any liquors at all without breaking the letter if not the spirit of the law, have discontinued its sale, and will not furnish liquor for any purpose. But in these live Western towns this course means certain loss of trade." "In one city whose population is not far from 3,500 they have at present nine drug stores, but a great number of these have been started quite recently," the reason being obvious.

The scheme of limiting the supply of intoxicating liquors to pharmacists is at present too far away from the region of practical politics in this country to need serious discussion, but, as we have shown, the idea is afloat, and is, indeed, in practical operation among some communities of our own race. It is therefore desirable that druggists should have an opinion about it.

#### A NEW STEP IN BACTERIOLOGY.

MESSRS. WM. CROOKES, Wm. Odling, and Meymott Tidy publish, as is well known, monthly reports on the various waters supplied to the metropolis by the seven companies who are carrying on that very prosperous business. These chemists, as we understand, are retained by the companies in order that their analyses may serve as a check on the official chemical reports submitted to the Water Examiner under the Metropolis Water Act, 1871. In their report for June a new feature of their investigation is recorded, or rather is hinted at, for as yet full details are not given. They have commenced, it appears, to inquire into the important question of the bacteriology of stored and running water. And their first results are striking and decidedly consoling after the sensational announcements with which bacteriologists periodically alarm us. The notions of the development of bacilli in mathematical progression, and of their conveyance by means of water, are certainly the ideas which the germ theorists have best succeeded in impressing upon the lay mind. Messrs. Crookes, Odling, and Tidy have so far experimented only with the *bacillus anthracis*, the best known of all the bacilli, and they have found that water infected with it can be kept at certain temperatures for a certain number of hours, and then possesses the power of infecting a culture medium. But that this power is not perpetual; that, in fact, in ordinary language, this particular bacillus will not live long in water. This observation is very interesting, and it is important to know the characteristics of water which, so to speak, will support bacillus life the most and the least easily. It is not at all new knowledge that bacilli can live in one medium and not in another; this particular bacillus of splenic fever, for instance, can only be cultivated with much difficulty in hay-infusion, a medium so favourable to certain other germs. It must be remembered, however, that the typhoid and the cholera germs (assuming the germ theory of these diseases) appear to flourish in water, and it will be when Messrs. Crookes, Odling, and Tidy come to experiment with these that the greatest interest of their experiments will commence. But that their investigations may have important bearings is obvious, and we hope they will be continued.

THEISME is the name given by Dr. Elvy in the *Union Medicale* to a disease special to tea drinkers. It appears to be simply a nervous state brought on by excessive tea-drinking without sufficient open-air exercise. But for the English language the name would seem to need revision.



A FRENCH paper brings together two or three analytical facts, which, in view of oleomargarine and its derivatives, suggest a new field for the scientific adulterator, and an unpleasant quarter of an hour for the poor consumer. First: Xanthine is found in urine, and in larger proportion in guano; secondly, coffee, tea, and cocoa contain the identical principle caffeine, theine, or theobromine; thirdly, a Mr. Fischer has invented a process whereby caffeine may be easily obtained from xanthine.

\* \*

A PARIS PHARMACIST tells us that the effervescence at the School of Pharmacy seems to have quite cooled down. The heroes who went to prison do not seem to have inspired emulation among their fellow-students. M. Chatin no longer shows his face around the college. It is a total eclipse. It is said that he will shortly take his "pension de retraite," and the grand cordon of the Legion of Honour is spoken of as the probable court plaster to be applied to his wounded honour.

\* \*

THE Exhibition at Liverpool, according to *Truth*, does not find favour in that city. "The guarantors are in despair, for they have discovered that their trade profits have been largely diminished by it. Manchester is also threatened by one of these shows, and it is really time for the trading classes in towns to consider whether, in encouraging these nuisances, they are benefiting any one beyond a few fussy persons who are anxious to make themselves prominent, and to obtain perhaps a knighthood."

\* \*

IF they are not quite ready to beat their swords into ploughshares, the Swedish Government would seem to be disposed to convert their ships of war into commercial drummers. We learn from a letter lately received from Tangier that the Swedish frigate *Vanadis* has lately arrived at that port, carrying, among other cargo, samples of the manufactures of thirty-five Swedish firms. The Government had resolved to send this frigate on a cruise to the coast of Morocco, and, having room on board, had offered to convey any samples of merchandise which might be thought suitable for the Moorish market. These goods, we are told, have been disembarked at Tangier, and a Swede was about to open a showroom where they would be displayed. We may yet employ our Mediterranean Squadron in distributing Beecham's handbills and delivering Pears's soap.

\* \*

IT may be inopportune for the committee with the multifarious duties to adopt a suggestion which has been put forward by Mr. Martin, of Newcastle-on-Tyne, to allow students at provincial schools of pharmacy the privilege of competing for the Council prizes along with the students in Bloomsbury Square. But Mr. Carteighe's explanation cannot surely be the only reason for not carrying out the proposal. The Newcastle School may be "the only one in the kingdom *bonâ fide* conducted by pharmacists and for pharmaceutical purposes" which has been brought officially under the cognisance of the President of the Pharmaceutical Society, but Sheffield asks us to say that there is at least one other school which can be so described, and Sheffield believes that other towns in the provinces could give as good an account of themselves. If the regret be as genuine as expressed, inquiries might at least be addressed to local secretaries before the idea is abandoned.

\* \*

IT may be recollected that in the latter part of last year we published some communications from subscribers who had paid deposits for shares in the proposed "British Chemists and Druggists' Trading Association (Limited)." They had not then been able to obtain repayment of the sums they had paid, but soon after the publication of their complaint in this Journal we had a letter from the secretary of the company informing us that a board meeting had been held, when it was resolved that, in view of the small amount of applications for shares, an allotment should be made, and that the money paid into the bank by the various applicants should be returned forthwith. In some

cases we know this was done, but at least two correspondents inform us that their claims are still outstanding. Early in May last we advised the solicitor to the company of the complaints we had received, thinking that there had been some oversight which could best be rectified quietly, but one correspondent writing on July 14, and another on July 16, inform us that their deposits are still unreturned. Our correspondents will most likely obtain their deposits by applying again to the secretary, William Barber, at 32 Fenchurch Street, London, E.C. This is not the registered office of the company, and notice of the change of address does not appear to have been given to Somerset House, whereby it is probable that some one is liable for a penalty. If, however, this secretary really represents the company, he is, we believe, the proper person to sue; if, however, the company cannot be got at we are advised that the directors are liable personally for the return of the deposit. They are quite substantial enough to meet any such liability.



AND

### Literary Notes.

*Three Hundred Problems in Chemical Physics and Specific Gravities, with Key.* By HENRY WOOTTON. London: Simpkin, Marshall, & Co. Pp. 91. Price 3s.

THIS little volume contains problems of an elementary nature, the intention of which is "to impart to the student an exact idea of the principles and nature of the science he is studying." The object is a most laudable one, and the author has conscientiously laboured to smooth the way for the student, but we question whether the principles of chemistry are best taught by arithmetical problems; at any rate, the experiment is a bold one. But the problems herein contained "will be found most useful exercises for students preparing for the medical, pharmaceutical, science and art, and other examinations." This is a more correct statement. The problems relate to twenty-five subjects (some of which overlap each other), beginning with "Calculation of molecular weight." Several of the formulæ are succinctly expressed, but there are many examples to the contrary, and occasionally an incorrect expression is to be noted, which might lead the pupil who has not studied the principles of chemistry to an erroneous conclusion. Vagueness in some of the formulæ arises principally from a too mechanical use of the rule of three formula. Thus, in problem ix., correction of volumes of gases for pressure, the rule is given: "*Place the given volume in the third term, place the pressure at which it was measured in the second term, and the final pressure in the first term. Work out by rule of three.*" From a mnemonic point of view, and that, we take it, is what the author aims at, this rule is better expressed thus: Multiply the volume by the observed pressure, and divide by the pressure required. On page 25, we have the following expression: "All gases expand equally when heated through the same number of degrees (Charles [*sic*]), viz.,  $\frac{1}{273}$ rd of the volume at 0° C. for every degree C." A curious and ingenious table illustrates problem xvii., "for the determination of weight of substance, weight of equal bulk of water, weight of substance under water, and specific gravity of substance, any two of the quantities being given." This table is based upon all that precedes in relation to the determination of specific gravities, and it is natural, therefore, to infer that after the student has performed the experiments and worked out the problems he should have "an exact idea of the principles," yet he must master the following enigmatical table before he can work out the answer to such questions as:—

"A substance weighing 120 grains, weighs in water 105 grains. What is the weight of an equal bulk of water?"

"What is the weight of a cubic centimetre of brass—sp. gr. 8?"



"What is the weight of a gallon of castor oil—sp. gr. 97?"

S=weight of substance; W=weight of equal bulk of water; U=weight of substance under water; S.G.=specific gravity of substance.

S	W	U	S.G.	
12	4	S-W	$\frac{S}{W}$	$\therefore U=12-4=8. \quad S.G.=\frac{12}{4}=3.$
18	S-U	15	$\frac{S}{W}$	$W=18-15=3. \quad S.G.=\frac{18}{3}=6.$
9	$\frac{S}{S.G.}$	S-W	1.5	$W=\frac{9}{1.5}=6. \quad U=9-6=3.$
W+U	2	12	$\frac{S}{W}$	$S=2+12=14. \quad S.G.=\frac{14}{2}=7.$
W x S.G.	20	S-W	5	$S=20 \times 5=100. \quad U=100-20=80.$
U + $\frac{S}{S.G.}$	$\frac{S}{S.G.}$	15	4	$S=15 + \frac{S}{4}; 4S=60 + S; 4S-S=60;$ $3S=60; S=20. \quad W=\frac{20}{4}=5.$

This table, with a suitable explanation, may be useful to the student in his exercises, but it is not an intelligible recapitulation of what precedes, and would be comparatively valueless in the examination-room.

The problems and the methods to which they refer are on the whole very well selected, and quite cover the ground that the pharmaceutical student may be expected to be tackled upon; and, as supplementary to previously acquired knowledge of the philosophy and physics of chemical science, the book will undoubtedly be a useful aid to the student, but without that knowledge it is confusing and incomplete.

#### Notes on Analytical Chemistry, for Students in Medicine.

By ALBERT J. BERNAYS, Ph.D., F.C.S. Second edition. London: J. & A. Churchill. Pp. vi. + 129. Crown 8vo. Price 4s. 6d.

THESE notes have now been in use for a considerable number of years, in the first instance in conjunction with the author's notes on chemistry generally, and since 1879 in separate form. Any feature of novelty which the notes possess has now worn off to some extent, nevertheless, we may indicate the more interesting features, and particularly the scheme which the author adopts for imparting instruction.

Red and blue litmus paper, sodium carbonate, and silver nitrate are the substances which are employed to split up the various inorganic bases into well-marked groups. For example, in testing a solution of a salt which is alkaline, sodium carbonate is employed to show the presence or absence of the alkaline and earthy bases, and the same reagent indicates the presence or absence of salts which are acidulous in their nature. This method enables the student to decide at once regarding the alkaline bases, instead of delaying to the last, as is generally the case. Otherwise this chapter follows the conventional lines, but has valuable notes interspersed, the object of which is to save time by warning the student that he need not look for certain substances if certain reactions have previously been obtained. For example, if sodium carbonate has given a precipitate in a neutral or faintly acid solution, it is obvious that a base other than ammonium, sodium, or potassium is present; and as "carbonates, sulphites, phosphates, borates, oxalates, silicates, arsenites, and arsenates of these metallic bases are insoluble in water," it follows that these acids need not be looked for when testing for acids. Following the general methods for testing for bases and acids is a very condensed but useful chapter on metals, oxides, hydroxides, and sulphides, in which are given their principal characteristics and reactions, both in the wet and dry way. The acids are then treated in the same way. The next chapter deals with the

appearances of the more commonly occurring bodies in relation to colour and form (crystalline or amorphous). Also brief directions for the treatment of insoluble substances. The whole of the foregoing may be considered as the first part of the book, and it is admirably summarised in short tables for the analysis of a simple salt. The second part is devoted to special subjects, such as the chemistry for the London M.B. examination; volumetric analysis (somewhat limited in treatment); chemistry of water, milk, blood, urine, &c.; water analysis; ultimate organic analysis; special qualitative analytical processes, and so on. Owing to the short space in which a large number of subjects are treated, some of the individual subjects suffer in clearness, but on the whole the author has succeeded in presenting the more important facts in an intelligible way. The special features we have already pointed out, and it is these, together with the general excellence of the work, which will render it equally serviceable to the medical and pharmaceutical student of chemistry.

*Natural Mineral Waters: Their Properties and Uses.* Eighth edition, revised and enlarged. London: Ingram & Royle, 52 Farringdon Street, E.C. Pp. 68.

MESSRS. INGRAM & ROYLE have done a service to chemists by compiling this pamphlet, in which they give details of the most popular of the continental medicinal waters. The most authoritative analyses and consensus of the best medical opinion as to the uses of the various waters described, and in many cases descriptions of the springs, are given, all of which is frequently valuable for reference in answer to questions from medical practitioners or from some of the best classes of customers. We believe Messrs. Ingram & Royle will give a copy of this useful pamphlet to any chemist who may apply for it.

#### FRENCH PHARMACEUTICAL NEWS.

(From our Paris Correspondent.)

THE ACADEMY OF MEDICINE, at their sitting of July 13, elected Dr. Bouchard to full membership, in the section of medical pathology.

ACCIDENT IN A PARIS PHARMACY.—On July 14, towards evening, a porter named Pépin, in the employ of M. Rogers, the American pharmacist, of the Rue du Havre, accidentally caused the ignition and explosion of some ether. He was severely burned. The fire was promptly extinguished by the firemen before it had time to make any headway.

CHEVREUL'S CENTENNIAL.—The students here propose to celebrate the occasion, on August 31, by presenting to the veteran chemist a memorial medal now being executed by M. Roty, a well-known artist. The subscription list is now open at the Société d'Agriculture building, 18 Rue de Bellechasse, and should the funds collected permit it, each subscriber will receive a duplicate of the interesting medal.

CHANGE IN THE NANCY COLLEGE OF PHARMACY.—At the last meeting of the Council of the School action was taken in regard to the directorship of the Superior School of Pharmacy of Nancy, formerly at Strasbourg. Professor Schlagdenhauffen was elected to replace Professor Jacquemin, whose term of office as director has expired. The new incumbent is a distinguished chemist, known for many scientific papers which have appeared in the English, German, and French periodicals. He is said to be well versed in the English and German languages, French being his native tongue, and has among other important works published a French translation, with annotations, of Gorp-Besanez's "Treatise of Physiological Chemistry." What is also of some importance, he is reported to be a great favourite with both the other professors and the students of the Nancy school.

IT LOOKS LIKE FLUORINE.—At the last sitting of the Academy of Sciences, on July 19, M. Debray spoke of the gas obtained by M. Moissan when decomposing with electricity, at a very low temperature, liquid hydrofluoric acid in a U-shaped platinum tube. The substance in question, it will be remembered, collects at the positive pole, and possesses

the property of attacking mercury, silicium, platinum, and phosphorus, forming various fluorides. M. Moissan, and with him Messrs. Debray and Friedel, thought the easiest explanation of these phenomena would be to conclude that the gas thus isolated is fluorine. Still, it might also be a mixture of ozone and hydrofluoric acid, or a hydrogen perfluoride. New experiments have convinced M. Moissan that the gas is not a mixture of ozone and hydrofluoric acid, so that the hypothesis of hydrogen perfluoride is the only one that remains to be disposed of. M. Berthelot said he thought fluorine is the substance that M. Moissan is now dealing with. Nevertheless he advised the fortunate discoverer to continue his experimenting until he has proved beyond doubt a fact of so great an importance to chemistry.

**SENTENCE ON THE BOURSE ANARCHIST.**—Gallo, the man who some months ago, in order to regenerate mankind, fired an English bulldog revolver at the Bourse speculators and bombarded them with prussic acid, has been sentenced to hard labour for life. During the trial he had a tilt with Professor Riche, of the College of Pharmacy, who appeared as an expert. The professor deposed that the prisoner had prepared his prussic acid from potassium cyanide and sulphuric acid, a bad process. Gallo, nettled, retorted that he knew chemistry enough to be aware of that, but being straitened for funds he had to proceed economically. Stéphane Normand, the pharmaceutical student of some fame as a handler of iron ladders, appeared as a witness of the shooting and acid throwing. At first he had been suspected of being an accomplice of Gallo, but the evidence showed clearly that he was present accidentally, and came very near being shot because he was in the prisoner's way. Gallo has undoubtedly an ill-balanced mind, but expert alienists have declared him to be perfectly responsible for his actions. Hence the punishment.

**EXPLOSION AT THE LYONS VETERINARY SCHOOL.**—On July 16 M. Edin, a well-known pump manufacturer, presented to the laboratory of the School for trial a high-pressure air-pump of a new system. M. Lamarque, an experienced mechanical engineer, was directing the working of the machine, and was assisted by Colomb, aged 51, one of the oldest porters in the laboratory. The operation was performed in one of the physiological laboratories, to which the students were admitted to witness the experiment, but with a caution not to stand too near. The receiver for the compressed air was a cast-iron Papin digester, represented to be able to bear a pressure of sixteen atmospheres. One atmosphere corresponds to fifteen pounds to the square inch. Suddenly, as the gauge only indicated ten atmospheres, the digester violently exploded. Colomb had his head crushed by one of the iron fragments, and was killed on the spot. Lamarque, his face scratched and his left shoulder disabled, was hurled to the floor senseless. After a while, however, under skilful care, he recovered, and the surgeons pronounce him out of danger. The manufacturers declare that the digester had been tested two days before the trial up to twelve atmospheres. An official inquiry is being made.

## Pharmaceutical Society of Great Britain

### BOARD OF EXAMINERS FOR ENGLAND AND WALES.

At a meeting of the Board held at 17 Bloomsbury Square, W.C., on the 8th, 9th, 15th, 16th, 19th, 20th, and 21st inst., the following passed the Major examination for registration as Pharmaceutical Chemists:—

Baker, G. Edmund, London  
Bostock, Jno. Wm., Ashton-under-Lyne  
Buck, Wm. Hy., Otley  
Ellerington, Jno. P., Hexham  
Hawkins, Lewis W., London  
Kirby, Herbert E., London  
Lawrence, Geo. R., Boston  
Liversidge, Jno. F., Nottingham

Morrall, Edwd. E., Bridgnorth  
Nurse, Jas. A., Lowestoft  
Pinder, Robert, Bourne  
Shacklock, Jas. H., South Cave  
Skyrme, Charles G., Cardiff  
Smith, Jno. Hy., Coventry  
Williams, Wm., Abergavenny  
Wilson, Richard, Kidderminster

The following passed the Minor examination for registration as Chemists and Druggists:—

Allan, Chas. J., Tadcaster  
Blinkhorn, Wm. S., Wellingborough  
Bradley, Fredk. Wm., Wisbeach  
Cartwright, Arthur, Alford  
Charles, Wm. Fredk., Loughborough  
Coles, Joseph, Rye  
Cooper, Geo. Thos., Market Bosworth  
Davey, Harry D., Stonehouse  
Delarue, Edwd. L., London  
Dixon, Philip Thos., King's Lynn  
Elliott, Alfred, Stowmarket  
Evans, Richard D., Dowlais  
Fisher, Geo. R., Scarborough  
Fleetercroft, Jno. F., Chester  
Forbes, Edwd., Bolton  
Foulds, Robert, Liverpool  
Francis, Jno. H., Wrexham  
Gant, Robert R., Norwich  
Garton, Robert T., Rugby  
Gasson, William, Crawley  
Goodman, Fredk. Wm., Newport Pagnell  
Goodness, Fredk. Wm., Leicester  
Gould, Chas. Wm., London  
Hodder, Geo. Wm., Frome  
Hurst, Saml. Jno., Boston  
Isaac, Hy. Oswald, Bristol  
Jenkins, John, Haverfordwest  
Jones, Tom Young, Carmarthen  
Judkins, Wm. Ed., Bedford  
Kelly, Philip Alfred, London  
Kimber, Arthur W., Tyfield Wick  
Lees, Jas. Nall, Rochdale

Leech, Fredk. Saml., Gateshead  
Lewis, Thomas W., Bloxwich  
Long, Herbert Hy., London  
Martin, Wm., Exeter  
Mays, Frank W., Grantham  
Minchin, Wm., Bedford  
Morris, Daniel, Portmadoc  
Mussellwhite, Wm., Basingstoke  
Oliver, Jno. Robert, Lynn  
Parsons, Thos., Bowton-on-the-Water  
Procter, Hy. R., Boston  
Sansom, Fredk. J., Barrow-in-Furness  
Sewell, Thos. A. W., Lee  
Shepperd, John Wm., Newport, Isle of Wight  
Siggers, Geo. Wm., Colchester  
Skewes, Josiah, Penryn  
Skirrow, Wm., Bingley  
Smith, Geo., Worcester  
Smyth, Thos. S., London  
Southall, W. F., Birmingham  
Street, Albert E., London  
Symonds, Jas. Alfred, Leamington  
Thomas, Edward, Garstang  
Thornton, Wm., Curdworth  
Ward, Thos. A., Wigan  
Warner, Wm., Bath  
Waterhouse, Wm. M., London  
Watts, Robert, Sheffield  
Wilkinson, Jno. E. B., Manchester  
Williams, Alfred, London  
Williamson, L. W., Darlington  
Wood, Arthur W., London  
Wright, Joseph P., Burton-on-Trent

### BOARD OF EXAMINERS FOR SCOTLAND.

This Board met at 36 York Place, Edinburgh, on the 14th, 15th, 16th, 20th, and 21st inst., when the following were examined and were declared qualified to be registered as under:—

As Pharmaceutical Chemist: Jack, James, Edinburgh.

As Chemists and Druggists:

Bowie, George, Edinburgh  
Brown, George, Dublin  
Butters, George, Edinburgh  
Cockshott, William Arthur, Manchester  
Craven, Henry Ernest, Newcastle-on-Tyne  
Cummings, William, Dundee  
Dawson, Theophilus Ernest, Manchester  
Greaves, William, Oldham  
Hay, James, Edinburgh  
Hope, John, Wigton, Cumberland  
Johnstone, James, London  
Kirkness, Robert, Edinburgh  
McCorquodale, John Campbell, Glasgow  
Marshall, Robert Hay, Aberdeen  
Maxwell, John, Edinburgh

Moffet, William Emslie, London  
Munro, John Joyner, Dundee  
Paterson, Alexander, Aberdeen  
Pickering, Richard, Blackburn  
Pottage, John William Dick, Edinburgh  
Raffan, Robert, Leith  
Robb, David, Edinburgh  
Robertson, William, Glasgow  
Robson, Robert, London  
Scott, Alexander, Glasgow  
Whyte, Joseph A. F., London  
Wilson, James, Liverpool  
Wood, David Moffat, Portobello  
Woods, Joseph James Birkett, Liverpool

LADY: "I'm afraid, Hannah, that this new carpet will get perfectly ruined if we don't do something to preserve it."  
"Yes, ma'am, that's true, and I think if you was to put a drug gist under the table it would be as nice as anything."



## Legal Reports.

### IMPORTANT TO WHOLESALE DRUGGISTS.

At the Hertford County Court on the 14th inst., a case of considerable interest to those engaged in the drug trade was heard before his Honour Judge Abdy. It was an interpleader case, "Hodgkinson, Prestons & King v. Charles Langford—W. H. H. Langford v. Hodgkinson, Prestons & King." The plaintiffs were the well-known wholesale druggists of Bishopsgate Street Without, and the two Messrs. Langford (father and son) reside at what is known as the Hertford Pharmacy, at 37 Fore Street. Mr. Brooke Little, barrister, appeared for Mr. W. H. H. Langford, and Mr. Neville, barrister, appeared for Messrs. Hodgkinson & Co. From Mr. Brooke Little's statement, and the evidence given by Mr. W. H. H. Langford, it appears that Charles Langford, the father, was in business as a chemist at Lynn, where he was made a bankrupt about 1876, and since then he has tried to carry on business at various places, including Poplar, Downham Market, Towcester, Dorking, and Chatteris; at the last-named place he was sold up and everything taken from him, about a year or two ago, after which he went to live with a son at Hunstanton.

In April, 1885, Mr. W. H. H. Langford, another son, returned from India, where he had saved some money, and being desirous of obtaining some means of livelihood for his father (to whom he had made an allowance while in India), negotiations took place which resulted in the premises, 37 Fore Street, Hertford, being taken, and they were subsequently fitted up and stocked with chemicals, &c., and opened as the "Hertford Pharmacy," the father attending to the business, and his name, "C. Langford," appearing on the labels, &c., as manager. The premises were taken in the name of the son, W. H. H. Langford, who also ordered and paid for the stock at the different wholesale houses, as well as the furniture, and the licences for tea, tobacco, &c., were taken out in his name. At the last Court, six weeks ago, proceedings were taken by the Pharmaceutical Society against W. H. H. Langford, under two different sections of the Pharmacy Act, for improperly using the title of "chemist," and for illegally selling poisons, and he was mulct in two penalties of 5*l.* each. Since then, however, the business has been turned into a limited liability company, and is still being carried on. In the meantime, Messrs. Hodgkinson & Co. obtained judgment in one of the courts against Charles Langford for 53*l.* and costs, for a debt incurred while he was in business as a chemist at Chatteris, and on April 22 an execution was put in for the amount (65*l.*), whereupon the Sheriff's officer was informed by the son, W. H. H. Langford, that everything upon the premises belonged to him, and he paid the sum demanded into the hands of the Sheriff pending the interpleader proceedings. In the course of the trial it was stated that a writ had also been obtained against the father by Messrs. Sanger & Co., and the son admitted in cross-examination that he knew his father owed several hundred pounds, but he did not know to whom until the two writs were served. The father was not examined, but several witnesses were called, including Mr. Bygrave, of London (who fitted up the shop), Mr. Rushforth, from Messrs. Evans, Lescher & Co. (who supplied some of the drugs, &c.), and others, all of whom stated that all their transactions had taken place with W. H. H. Langford, and not with the father. His Honour ultimately held that the goods were the property of the claimant (W. H. H. Langford) at the time of the levy, and he ordered Messrs. Hodgkinson & Co. to pay the costs of the proceedings.

### INFRINGEMENT OF A TRADE-MARK.

IN the Chancery Division of the High Court of Justice, before Vice-Chancellor Sir James Bacon, on the 16th inst., Messrs. Fennessy & Co., of Norman's Buildings, St. Luke's, applied for an injunction against Messrs. Day & Martin, of Holborn, to restrain them from infringing the plaintiffs' rights in a certain label.

Mr. Aston, Q.C., and Mr. R. W. Wallace appeared for the plaintiffs, and Mr. Marten, Q.C., and Mr. Farwell were for the defendants.

Messrs. Fennessy & Co. are the successors to Messrs. B. F. Brown & Co., and as such are the owners of a label, registered as a trade-mark, for "Brown's Satin Polish, suitable for ladies' and children's boots and shoes, for travelling bags, portmanteaux, &c." They have supplied their goods in bottles packed in cardboard cases from 1871 downwards. Quite recently they discovered, through information they received from their cardbox manufacturer, a Mr. Harris, that an order had been given to him for sixty dozen of cardboard boxes, to be made suitable for enveloping bottles such as those used by the plaintiffs, and Harris had been supplied with sixty dozen labels, having upon them the words, "Brown's satin polish for ladies' and children's boots and shoes, travelling bags, trunks, and portmanteaux; manufactured by Brown at Lavender Hill." This order it appeared had been to given the boxmaker by Messrs. Day & Martin.

The defendants by their affidavits admitted the infringement, and explained it in the following manner: Mr. White, one of their travellers, on June 12 last, called upon Mr. Nutting, one of defendants' customers, who gave an order for kid-renovating polish, to be done up in boxes. At the same time he received a manuscript label, to be printed and placed on the boxes. It never occurred to him that such label was an infringement of the plaintiffs' label. The boxes to be made for Nutting were entirely different from those used by the plaintiffs, with the exception that both bore the words "Brown's satin polish." There was also an affidavit by Mr. William Vernon, mixer and foreman in the employ of the defendants, in which the deponent stated that he received Nutting's boxes when they came from the makers, and observing that the labels contained the words "Brown's satin polish," he informed Mr. Newman, the manager, of the fact, and pointed out that there was already a Brown's satin polish in the market. Mr. Newman at once said that the order must not be executed, and appeared very angry. As a matter of fact the order was not executed. There was a further affidavit by Mr. Newman, the manager, who said that when he first saw the label, it did not strike him that it was similar to that used by the plaintiffs. When the finished boxes arrived, and the foreman pointed out to him that they contained the words "Brown's satin polish," he at once stopped the order. He had previously received no intimation from the plaintiffs of the alleged infringement, nor had his attention been called to the matter by Harris & Co., the boxmakers, and he denied that there was any intention to infringe. The defendants, it was stated, had expressed their willingness to compensate plaintiffs if any damage had been done, and proposed to deliver up or destroy all the labels they had in their possession, and comply with any other reasonable request the plaintiffs might make. It was therefore urged that there was no necessity for these proceedings, and it was asked that the injunction might be dismissed.

This left to the Vice-Chancellor only the decision of the award of costs. He considered the plaintiffs were fully entitled to an injunction, and therefore ruled that the defendants must pay the costs.

### THE LIABILITY OF A BANKRUPT.

THE VILLE ESTATE COMPANY V. GEDDES.—This case was heard before Mr. Justice Smith at the Manchester assizes on Saturday last. The company was formed in 1874 in Oldham, and the defendant, William Geddes, chemist, Manchester, took a prominent part in the management, and held sixty shares. In 1876 the defendant became bankrupt, but he did not return his shares among his assets. His discharge was granted to him in January, 1877, and his estate was re-assigned to him. In December, 1878, there were considerable arrears on his shares due from the defendant, and some of the directors pressed him to make payment. As he was a chemist it was agreed that he should furnish paint for some of the company's houses, and 10*l.* was credited to him. The company itself was wound up in November, 1885. The defendant was on the register as a shareholder, and the liquidators claimed to treat him as a contributor in respect of his arrears, which amounted to 409*l.* 17*s.* 9*d.* Mr. Collins, Q.C., was for the plaintiff, and Mr. Addison, Q.C., M.P., for the defendant. The latter put forward the defence that the bankruptcy got rid of all liability on the part of the defendant. The judge took this view, and held that the debtor was absolved from every debt by his bankruptcy.

## TRADE-MARKS APPLIED FOR.

**THE Trade Marks Journal** publishes the following notice:—"Any person who has good grounds of objection to the registration of any of the following marks may, within two months of the date of this journal, give notice in duplicate at the Patent Office, in the form 'J,' in the second schedule to the Trade Marks Rules, 1883, of opposition to such registration." All communications relating to patents, designs, or trade-marks to be addressed to H. Reader Lack, Esq., Comptroller-General of Patents, Designs, and Trade-marks, Patent Office, 25 Southampton Buildings, Chancery Lane, London, W.C.

*From the "Trade Marks Journal," July 14, 1886.*

"THE GOLDEN ELIXIR," and other wording on label; for a medicinal preparation for neuralgia, &c. By J. T. Smallman (trading as Hunt & Co.), 17 Westland Row, Dublin. 49,630.

A BAND, with the words "The Patent Crystal Spring Filter," enclosing figure of a filter; for water filters. By J. W. Sawyer, 97 Clapham Road, S.W. 51,018.

"CREAM OF COD-LIVER OIL," and signature; for cod-liver oil. By Gilson & Co., 28 Millwood Road, Herne Hill, London. 51,185.

"THE RUTHIN WATERS," and signature on label; for mineral and aerated waters. By R. Ellis & Son, Ruthin, North Wales. 51,735.

FIGURE of a kid, with setting sun on background, and wording on label; for mineral and aerated waters. By W. Kidson, Fisherton Mineral Water Works, Salisbury. 51,982.

PICTURE of a man extracting in a primitive manner the tooth of another; for pharmaceutical preparations. By G. H. Jones, 57 Great Russell Street, W.C. 52,051. The same for matches, blue, starch, &c. 52,588.

THREE BIRDS' HEADS united wheel-like, and the word "Limpidus"; for mineral and aerated waters. By Anderson & Co., Dudley Street, Wolverhampton. 52,335.

"ANTI-SEA-SICK PASTILLES," and other wording on an oval label; for a remedy for sea-sickness. By Machshefes & Co., Moscow, Russia. 52,355.

A BIRD between the letters P and N; for herbs in packets, &c., used as ingredients in food. By Pannett & Neden, 204 Stewart Road, Wandsworth Road, S.W. 52,390.

FIGURE of a VIKING in a BOAT; for grain extract. By Dr. Jaeger's Sanitary Woollen System Company (Limited), 41-44 Fore Street, E.C. 52,497.

"A ONE" within a divided circle; for compound feeding-stuffs for cattle. By A. Cole & Co., 61 Mark Lane, E.C. 52,635.

"ZELCAHBE;" for baking powders and other food-stuffs. By E. Lee, trading as the National Bakery Company, 102 Ladbroke Grove, Notting Hill. 52,677.

"MELLA;" for chemical substances used as medicine. By British Patent Medicine Company, Queen's Arcade, Glasgow. 52,791.

"VALMA;" for the same. 52,950.

PICTURE of three coniferous trees, and the words, "Bournemouth at home"; for a tar exhaling apparatus. By G. M. Nicolaus, Queen Anne's Mansions, St. James's Park, S.W. 52,885.

"MARMORINE" between a mantelpiece and statuary; for powder for cleaning marble. By J. McMillan, 17 Great Western Road, Glasgow. 53,068.

"JUBILEE;" for aerated beverages. By Batey & Co., 216 Kingsland Road, 53,071.

FIGURE of a plate of artificial teeth; for artificial teeth. By J. W. Gibson, 87 Great Hamilton Street, Glasgow. 53,233.

"NATIVE GUANO;" for chemical substances, manures, filter presses, and other implements and substances used in sanitation. By Native Guano Company (Limited), 29 New Bridge Street, Blackfriars, London. 53,449-53,452.

"GOLD MEDAL EAU DE COLOGNE," with other wording, and figure of a medal on an oval label; for eau de Cologne. By J. & E. Atkinson, 24 Old Bond Street, London. 55,158.



## PARTNERSHIPS DISSOLVED.

ANDERSON, J., & Co., Clayton, near Manchester, chemical manufacturers and commission agents and merchants.

PRICE & WARDLE, Brixton Road, Lambeth, chemists.

## ADJUDICATION.

SHAW, THOMAS, late of the Hydropathic Establishment, Colwyn Bay, Denbighshire, physician and surgeon.

## RECEIVING ORDER AND DATE OF PUBLIC EXAMINATION.

DYSON, JOHN EDWIN, East Ardsley, Yorkshire, druggist and seedsman, August 5. Wakefield.

## FIRST MEETINGS.

BRIDGWATER, EDMUND LAMFRET WHELE, West Bromwich, chemist and druggist, August 3. Court House, Oldbury.

DYSON, JOHN EDWIN, East Ardsley, Yorkshire, druggist and seedsman, July 28. Official Receiver's Office, Wakefield.

HICKEY, ANDREW, Birkenhead, mineral water manufacturer. July 30. Official Receiver's Office, Birkenhead.

## SCOTTISH BANKRUPTS.

## EXAMINATION.

BRUCE BROTHERS & Co., oil manufacturers, Govan Oil works, Govan, and JOHN INGLIS BRUCE, oil manufacturer there—To be examined in the chambers of Mr. Sheriff Spens, County Buildings, Glasgow, July 26, at 11 o'clock. Creditors will meet in the office of Kerr, Andersons, Muir, & Main, 149 West George Street, Glasgow, August 4, at 12 o'clock.

## DIVIDEND.

Creditors of MATTHEW GRAHAM COLTART, chemical manufacturer in Glasgow, will receive a dividend, September 4, in the office of John Wilson & Stirling, 59 St. Vincent Street, Glasgow.

## NEW COMPANIES.

THE NATIONAL MEDICAL AID COMPANY, LIMITED, was registered on July 7, 1886, with a capital of 10,000*l.* in 10*l.* shares, "to grant or effect insurances as provision for payment of medical attendance incurred through sickness or accident." The first shareholders are J. G. Clensy, F. W. Pettitt, and J. Spencer, all of Barnes; T. Chetney, of Liverpool; A. Henri and W. Long, of Streatham; and J. Barry, of South Hackney. The registered offices are at 10 New Broad Street, E.C.

THE YORKSHIRE AERATED WATERS COMPANY, LIMITED, was registered on July 13, 1886, with the object of acquiring the trade and connection of Samuel Mills, of Leeds, and of carrying on such a business. The capital is fixed at 2,500*l.*, in 1*l.* shares. The first shareholders are A. Drury, Scarborough; T. F. Taylor, Headingley; W. R. Rowley, Leeds; R. E. Slade, Harrogate; C. West, G. W. Chapman, and R. H. Hodson, all of Leeds. The registered offices are at High Court Lane, Calls, Leeds.

THE CENTRAL AERATED WATERS COMPANY, LIMITED, was registered on July 14, 1886, with a capital of 10,000*l.*, in 1*l.* shares, the objects being (among others) "the manufacture and sale of aerated waters in Manchester, Liverpool, and other towns and districts in the United Kingdom as the company may from time to time determine; and purchase of the aerated water businesses now or lately carried on at Manchester by the Central Tea and Coffee Houses Company, Limited, and at Liverpool by a firm trading as the Central Aerated Waters Company. The first shareholders are D. W. Probert, of Aston; J. Rogers, of London; T. S. Smalley, F. Short, J. W. Wood, and J. C. Smith, all of Manchester; and M. M. Moffert, of Liverpool. The registered offices of the company are at Cobden Chambers, Corporation Street, Birmingham.

A CAPITAL of over two million dollars is invested in the vinegar trade (alcohol vapourising process) in the Western States, U.S.A. This process has been greatly developed within the last four or five years.



## DECOLOURISED TINCTURE OF IODINE.

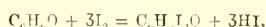
By W. H. DARLING, F.C.S., F.I.C.

THE formula of this preparation, viz., tincture of iodine, aqueous ammonia, and water, of each equal volumes, introduced some twenty years ago, has undergone various modifications, having for their object the shortening of the time required by ammonia to effect decolourisation. For this purpose fixed alkaline hydrates and carbonates, sulphurous acid and sulphites, hyposulphite of soda and carboic acid have all had advocates. All these will more or less decolourise a solution of iodine more rapidly than ammonia, but that the finished product will not be the same in each case appears to have been overlooked, or at least, not mentioned. These modifications are divisible as to the final result into three classes, viz. :—

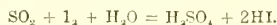
- (1.) Carboic acid and sulphurous acid.
- (2.) [A] Hyposulphites and [B] sulphites.
- (3.) Hydrates and carbonates of the fixed alkalies.

It is generally assumed that in the latter case an iodide and iodate are formed; some time ago I went into this question, but could not find iodate, although I found iodoform. The following I take to be the reactions which occur in each case.

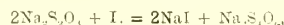
In the first class there will be produced iodophenol and hydriodic acid :—



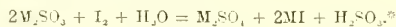
or sulphuric acid and hydriodic acid :—



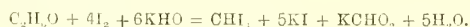
In the second class, A produces an iodide and tetra-thionate :—



and B, an iodide and sulphate :—



In the third class, the materials react to form an iodide and iodoform thus :—



It will be seen from these reactions that it is by no means a matter of indifference what decolouring reagent is used.

In class one there is produced an acid solution, in class two an acid or a neutral one.

In class three the result is the same as that produced by ammonia, viz., an iodide and iodoform.

## Trade Notes.

CURLING PAPERS.—Messrs. Bourne, Johnson & Latimer have "compiled" bundles of thin "curl" papers into the form of a volume, showily bound, and entitled "Stray Leaves from Japanese Papers." The idea is a happy one, and the work is likely to be popular.

MR. W. B. CAPPER, Chorlton-on-Medlock, has produced, under the name of "Crimidone," a stimulating pomade for the hair, which, apart from its agreeable nature as a toilet preparation, appears to induce a healthy tone in diseased hair follicles. The preparation is non-irritating, and is good value as a pomade merely.

THE PHOTOGRAPHIC TRADE.—Messrs. Marion & Co., of Soho Square, have published a very useful illustrated "List of Photographic Goods for Amateurs" (pp. 48), quoting prices for all goods named. Separately they supply to chemists and opticians a sheet showing varying discounts for different classes of goods. The rate of profit ranges from 10 to 35 per cent., and averages about 25 per cent. These will considerably aid chemists in their dealings with amateurs.

SALICYLIC CORN-PLASTERS.—Following, but diverging from, the multitudinous corn-solvents in the market, Mr. St. Dalmas, of Leicester, has applied the remarkable skin-solvent

powers of salicylic acid to plasters, and now sends out six-penny boxes of "salicylic corn-plasters." In these a little disc of salicylic plaster is fixed to the middle of a small strip of adhesive plaster, and is intended to remain on the corn for a week. A more frequent renewal is, however, advisable. This is a very convenient and effective way of applying salicylic acid to corns.

HOP BITTERS LABELS.—We are informed that Messrs. Ford, Shapland & Co., the well-known label printers of Great Turnstile, London, have taken Counsel's opinion upon every kind of Hop Bitters labels supplied by them to their customers, and the reply runs as follows :—"I am of opinion that Messrs. Ford, Shapland & Co. will be quite justified in printing any of the labels; the words 'Hop Bitters' are descriptive, and as there is no patent for the manufacture of the article, everyone is entitled to make and sell it, and in doing so to describe it by its appropriate name." There is a cocksureness about that opinion which seems to indicate some degree of youthfulness on the part of its author. Surely the labels against which an injunction *has been* obtained would have been passed by this authority on the grounds stated.

## Personalities.

MR. H. LLOYD-SNAPE, who recently held the position of demonstrator of chemistry at University College, Liverpool, has been appointed lecturer on chemistry and chemical technology at the Manchester Technical School.

MR. EDWARD CAPPER, son of Mr. Samuel James Capper, of 55 Bold Street, Liverpool, and Hayton Park, has just obtained the degrees M.B. and C.M. of Edinburgh University. The announcement has given much pleasure to Mr. Capper's Liverpool friends.

PROFESSOR REMINGTON, of Philadelphia, left London on Thursday for a week in Scotland previous to his departure for home. The Professor has had an enjoyable trip through France, Germany, Switzerland, Austria, and Italy since he was present at the Pharmaceutical dinner in May; but he talks English as fluently as ever.

PUBLIC ANALYSTS.—Mr. Walter William Fisher, M.A., F.C.S., Aldrichian Demonstrator of Chemistry in the University of Oxford, has been appointed public analyst for the county of Berks, at 2*l.* 12*s.* 6*d.* for each quarterly (other than a *nil*) report, 10*s.* 6*d.* for each analysis, and 2*l.* per day, and 3*d.* per mile each way, for each compulsory attendance as a witness; for the borough of Banbury, at 5*l.* 5*s.* per annum, and 10*s.* 6*d.* per analysis; and for the borough of Abingdon, at 1*l.* 1*s.* per analysis. Mr. C. W. Heaton has been re-appointed public analyst for the parish of St. Martin-in-the-Fields, at 50*l.* per annum, and 10*s.* 6*d.* per analysis, for one year. Mr. James Wright Gatehouse, F.I.C., has been appointed public analyst for the county of Wilts, at 10*l.* 10*s.* per annum, and 10*s.* 6*d.* per analysis.

I SUPPOSE, says a correspondent of *Truth*, all idea of making Mr. Martin Holloway a baronet has fallen through. Even supposing that the late "Professor" Holloway merited admiration for devoting a portion of his pills-and-ointment profits to building and endowing a college, this is no reason why Mr. Martin Holloway should be rewarded. In the year 1866 he was a shopman of the name of Martin at Wheeler & Co.'s, hosiers, and beyond attending to the general business of the shop he was at the head of the scent department. From thence he went into the "Professor's" business, and finally married Mrs. Holloway's sister. On the death of the "Professor" he benefited largely by his will, and tacked Holloway on to his name of Martin. He has contributed nothing to the College, but has, in conjunction with his co-trustee, Mr. D. Holloway, the "Professor's" wife's brother, merely carried out the conditions of the "Professor's" will.

IN THE UNITED STATES there are eighty-nine regular medical colleges, with about 10,000 medical students; eight of these medical colleges have each from 300 to 600 students, and seven of these colleges have from 200 to 300 students.

\* "M" the base in the salt used.

## Trade Report.

*It should always be remembered that prices quoted in this section are as nearly as can be ascertained the lowest that are actually paid for bulk quantities. Considerable allowances have to be added in many cases before ordinary prices can be ascertained, and for many drugs it must be recollected the range of quality is very wide.*

MINCING LANE, July 22.

THE markets have a slightly improved tone this week. In the auction to-day there was brought an interesting lot of American drugs, consisting of wahoo root bark, hamamelis bark, kava kava root, iris versicolor root, asclepias root, gelsemium root, hydrastis root, leptandra root, and also a package of mezerion [wood and bark]. These drugs are rare visitors to Mincing Lane, and it is not surprising that they were passed over by those who care little for recent developments in therapeutics. The drugs were all of good quality, and were all bought in at from 8*d.* to 1*s.* 2*d.* per lb., which prices were of course merely nominal, as may be judged from the fact that 30*s.* per lb. was placed on one bark, where as many pennies would have been sufficient. It is to be hoped that when these drugs appear again more interest may be taken in them by brokers.

ALOE (CAPE).—There were close upon 130 cases brought up for sale, most of which was very soft and imperfectly finished, and what of it did sell went very slowly. Five cases exceptionally good colour, compact and dry, 30*s.* 6*d.* Eleven cases good, bright, and hard sold from 24*s.* to 27*s.*, and about a dozen cases of the damper varieties sold at and between 9*s.* and 21*s.*, according to the quantity of moisture present. One bag sweepings weighing 1½ cwt. fetched 5*s.*

ALOE (CURAÇAO).—A very large supply of Curaçao in gourds was brought to auction. Some of this was of really good liver quality, but by far the bulk of the supply was either overheated or of very mixed grain. The whole supply, amounting to 350 gourds and boxes, was either withdrawn or bought in. In the latter case 40*s.* was the figure put upon good livery in gourds, and 80*s.* for much inferior and parti-coloured aloes, and between that and 6*l.* 10*s.* were marked against the other lots, all of which will bring very different prices when sold.

ANNATTO.—Eight cases were sold without reserve, all being more or less damaged; 4 cases inferior to mouldy, 1*l.* to 1½*l.*, and 4 of good, bright, soft, at 4½*d.* Of 19 cases of Bixa seed, most of which was good, only the worst lots sold, viz., 8 cases at ½*d.* per lb.

ARGOL.—Seven bags *Cape*, dark, but in good condition for refining, sold at 87*s.* per cwt. Twenty cases were withdrawn.

BUCHU.—Three bales broken and badly-coloured long leaf bought in at 8*d.*

BALSAM PERU.—The supply was of very good quality, full odour, clear and bright, but there were no buyers, and the whole 15 cases were bought in at 5*s.* 3*d.* to 5*s.* 4*d.* per lb.

CANELLA BARK.—One bale of good white and thick bark sold at 35*s.*, and 8 bales, mostly sea-damaged, were withdrawn.

CARDAMOMS.—The supply of 164 packages, somewhat larger than previous sale, met with a very fair response. The quality was nothing extraordinary. A parcel of 3 cases of old-fashioned *Bombay*, long and dark, sold at 2*s.* 9*d.* Some very superior *Ceylon-Malabar*, plump, fleshy, and pale, fetched from 2*s.* 6*d.* to 2*s.* 9*d.*; the same, but smaller and a little punctured, 2*s.* to 2*s.* 4*d.* There was a good quantity of medium cardamoms disposed of at rates from 1*s.* 5*d.* to 1*s.* 10*d.*, and the inferior kinds from 9*d.* to 1*s.* 1*d.*, although one lot brought only 6*d.*, but this was comparatively seedless. *Seed*.—1*s.* 4*d.* to 1*s.* 6*d.* for *Ceylon*, and 1*s.* 7*d.* for *Bombay*.

CHIRETTA.—Ten bales of good clean drug did not find a purchaser, and were bought in at 3*d.*

CASCARILLA.—100 bales of bright, fairly large bark sold at 25*s.* and 25*s.* 6*d.*

CASSIA FISTULA.—110 bags of exceptionally good long pods were offered by one broker, and 50 were sold at 25*s.*

COCA LEAVES.—Forty-five bales offered; some of it good, but no purchasers.

DRAGON'S BLOOD.—Eleven cases were offered, but were all bought in. 6*l.* 2*s.* 6*d.* was offered for one lot of good bright resin, but 7*l.* was put upon it by the auctioneer, and at this figure it was bought in.

GALLS.—Nearly 600 bags were offered, but only one of fair quality found a purchaser at 50*s.* A badly damaged bag sold for 36*s.*, and there was very brisk bidding for 50 bags of sea-damaged which sold for 40*s.*, and 47*s.* for the slightly damaged.

GAMBOGE.—Ten cases good bright, partly blocky, sold at 10*l.* 17*s.* 6*d.*

GUM ARABIC.—A good supply of *Cape* and *East Indian* gums, but mostly withdrawn and sold. Some excellent *Turkey* offered, but bidders could not be induced to emerge. *Cape*.—Fair-coloured, clear gums, 58*s.* to 62*s.*; small siftings, clean, 45*s.*; 1 bag blocky, 10*s.* *East Indian*, 85*s.*

GUM ELEMI.—Thirty-five cases of excellent white bought in at 30*s.*

GUM AMMONIACUM.—Some good pale, partly block, sold at 21*s.*

GUM GUAIACUM.—Eight boxes of bright block, consisting principally of agglutinated tears, fetched from 1*s.* 3*d.* to 1*s.* 4*d.*

IPECACUANHA.—There was a good supply (37 serons), generally of excellent quality and of characteristic appearance, but there were a number of badly sea-damaged bales, quite damp and mouldy, and some of these found purchasers at 2*s.* 9*d.* per lb., with 2*s.* 11*d.* and 3*s.* for the dryer lots. One seron of good undamaged fetched 3*s.* 6*d.*

JALAP.—Sixty bales good small to large tubercles, fleshy and hard, sold at 4½*d.*

KAMALA.—Six cases of medium, rather dull and sandy sold at 3*d.*, and some *sea-damaged*—a very inferior and apparently useless lot—at 2*d.* to 2½*d.*

MUSK.—The supply was fair, and bidding on the whole was brisk. *Tonguin*, first pile, small to bold, thin skin and underskins and soft, 68*s.* *Yunnan*, excellent quality, 70*s.* *Grain*, 61*s.* to 61*s.* 6*d.*

NUX VOMICA.—An inferior lot of 75 bags *Bombay* sold at 5*s.* 3*d.* to 5*s.* 6*d.*

OIL (PENNYROYAL).—Four cases of Hotchkiss's in original bottles were offered without reserve, and after good bidding was knocked down at 3*s.* 7*d.*

OIL (PEPPERMINT).—Fourteen cases H. G. Hotchkiss's in sale. The first 5 sold at 14*s.* 9*d.*, and the next 8 at 15*s.* 3*d.* The rest bought in at 15*s.* 6*d.*; 5 cases of a brandless "Peppermint oil" found no bidders and was bought in at 8*s.*

OIL (COD LIVER).—*Newfoundland*.—Forty-five casks offered, 21 good, straw-coloured sold at 2*s.* 3*d.*; a lot a shade darker at 2*s.*, and another at 1*s.* 9*d.* *Norwegian* bought in at 3*s.* for good pale, and 3*s.* 9*d.* for water white. The price of this oil is expected to go low.

OPIUM.—A lot of sea-damaged, repacked in pink and yellow paper, and very little the worse of the sea; bought in at 5*s.* 9*d.*

OTTO OF ROSE.—Six vases offered and bought in, nominally, at 14*s.*

QUININE.—In sale 2,000 oz. of Whiffen's in 100-oz. tins was offered, but no bid could be got and the whole was bought in at 2*s.* 3*d.*

RHUBARB.—There was a moderate supply of ordinary medium kinds, suitable for manufacturing and grinding. Most of it was dark and compact in grain. Ordinary round dark 1*s.* to 1*s.* 3*d.* and 1*s.* 6*d.* (in case 2*s.* 6*d.*). Flat and round mixed, very spongy 9*d.* The better qualities of flat brought from 1*s.* 3*d.* to 1*s.* 7*d.*, and a small lot 2*s.* 1*d.*



**SARSAPARILLA.**—*Jamaica*.—A good supply of pretty fibrous root, most of which was in good condition, although a lot was catalogued sea-damaged, and sold at 1s. 6d. to 1s. 8d. The sound drug, of fine colour and freshness, sold at from 1s. 7d. to 1s. 10d.

**SCAMMONY.**—Several cases fair to good, but rather dull, sold at 21s., and a superior lot at 28s. A bag of chips and residues sold at 10s. We noticed 3 tins of resin catalogued along with the gum-resin, which were bought in at 7s. 6d.

**MACE-PASTE.**—A lot went off at 2d.

**SENEGA.**—A 6-cwt. parcel of this root, in good condition and not too chumpy, sold at 2s.

**SENNA.**—*Alexandrian*.—Three bales small broken sold at 8d. *Tinnerelly*.—Several bales of sea-damaged were disposed of at 3½d. and 4d.

**SQUILLS.**—A lot of 41 bags, good pale dry, sold at 2½d.

**TAMARINDS.**—Dull but well preserved whole pod, 7s.

**TURMERIC.**—In sale to-day 20 bags of good bright *Madras* sold at 15s., and 6 bags of worm-eaten and sea-damaged at 13s. 6d.

**VANILLOES.**—Oil lots, light brown in colour and partly frosty, sold at 3s. to 4s.

**WAX.**—Of bees'-wax there was a fair supply, but comparatively little of it was disposed of. *Australian* showed up best, and fetched best prices, to which its compact appearance and hardness entitled it. 5l. 17s. 6d. to 6l. 5s. was obtained, according to colour. *Jamaica*.—6l. to 6l. 2s. 6d. were the ruling prices. *Japan*.—A fair supply of good ordinary, but the presence on the market at the same time of a large lot of sea-damaged compelled the former to be withdrawn. The damaged lot was softish and dirty. The worst brought from 31s. to 31s. 6d., and the rest from 49s. to 50s., after some lively bidding.

CAMPHOR is very firm, and it is expected that prices for refined will advance within a day or two. On sale to-day a lot consisting of 127 tubs Japanese all sold without reserve at 68s. per cwt., an advance over previous rates.

**CASSIA LIGNEA.**—In sale on Wednesday a parcel of 1882 import sold at 23s. 6d., and 60 boxes of ordinary at 24s.

**CASSIA BUDS.**—Sixty boxes sold without reserve at 37s. 6d.

**CINNAMON.**—A quiet but steady tone prevails. Transactions are at a minimum. The present price of *Tellicherry* is 7d. to 9d.; first quality *Ceylon* ranges from 8d. to 1s. 7d., and the lowest or fourth quality 5d. to 10d. Chips are in small supply at 1½d. to 3½d.

**CLOVES.**—The market is still weak, and, although the price is steady at 9½d., and 150 bales of Zanzibar have actually been sold at that figure for arrival, 9½d. bought 50 bales of middling mixed on Wednesday.

**GINGER.**—The market is still dull, and supplies are in bulk out of comparison with the demand. On Wednesday the following rates were obtained for *Cochin*: Good small cut (C) 47s. to 48s., small cut 40s., medium and small washed 34s. to 35s., medium rough 28s. Lower qualities from 16s. 6d. to 26s. *Jamaica*, selected bold 7l. 5s., fair to good 52s. to 59s., common to medium 36s. 6d. to 43s.

**NUTMEGS.**—Supplies are at a minimum and sales correspond. Prices are unchanged.

**PEPPERS.**—*Black*.—It is reported that 200 tons of Acheen have been sold for arrival at an advanced price. On spot sales are insignificant. *Chillies*.—Only 9 bags out of a parcel of 180 were sold in auction, the rest being bought in at 35s. *White*.—Fifty bags were sold privately. For Penang, June-July business is reported at 11½d. for arrival. *Pimento*.—260 bags sold in auction at 2½d. to 2¾d. for fair to good, being a decline of ¼d.

**MITCHAM CROPS.**—We learn from Messrs. John Jakson & Co., that this year's crop of Mitcham peppermint is likely to be a medium one. During the severe winter many roots perished, and the prospect was very bad indeed until May, when refreshing rains permitted extensive re-planting. White peppermint suffered more particularly from the cold, but

now it is of good appearance. The plants were very backward in May, but during June they have developed so well that the Messrs. Jakson expect to begin distilling at the end of July or beginning of August. *Pennyroyal* has suffered more than mint, and the crop will only be a very small one. *Lavender* has been little affected by the cold, and a good medium crop is expected.

**OIL PEPPERMINT.**—Jakson's Mitcham oil new crop, August-September delivery, is offered at 32s. per lb.

**OIL (OLIVE).**—Advices from Naples state that the weather has continued very favourable for the olive crop; but notwithstanding this, growers show no anxiety to realise, and unless there is shortly some marked reduction in crop estimates there, or in other producing countries, it is to be apprehended that the present large stock of oil will weigh heavily on the market as the new crop is approached. Some further sales have been made for Russia at the extreme prices, but so far this business is somewhat restricted. The exports of common olive oil from Neapolitan ports during the first six months of the year amount to about 14,000 tons, and present stocks between shipping ports and the interior are estimated at 25,000 to 30,000 tons. London prices remain stationary, and at Liverpool this week a little business has been done at the following rates: *Smyrna*, 34l. to 35l.; *Seville*, 38l.; and *Malaga*, 37l. per tun.

**SHELLAC.**—The sales on Tuesday were extremely slow, and prices obtained were from 1s. to 3s. lower. Second orange brought 48s. to 50s. according to brand; several lots out of condition fetched 46s. to 48s.; and some blocky and faulty, ruby unworked, sold at 41s. to 42s., Calcutta weights. *Button* of finest quality 56s. to 57s.; the same, but smaller and not in so good condition, 53s. to 54s. Fine second blood (R3BL1) at the same figure; fair third, 43s.; and dark third, 42s. From Calcutta we learn that there has been better inquiry lately, and upwards of 2,000 cases native leaf have been sold for shipment. Several of the factories are reported closed or curtailing production, and sellers of good marks are firm. Some inquiry exists for America, and the market has a firmer tone than for many weeks past. In London it is reported that about 1,700 cases have been sold privately for arrival, TN at 47s. 6d. to 48s.; DC, 67s.; OCC, 44s. to 45s., all e.f.i. terms; RBBL2, 54s.; BL1, 61s.; BL2, 55s.; TN, 50s. 6d. to 52s., landed terms; also some quantity on private terms.

**TURMERIC.**—The market is still in a very unsatisfactory condition, supplies pressing forward without hope of disposal for a long time to come. No better evidence of this can be had than in spirit of the auction sales. On Tuesday nearly 700 bags of Madras were withdrawn, and only 90 disposed of at last week's prices. *Cochin*.—Sixty-five bags of split bulbs disposed of at 8s. to 8s. 3d.

**QUININE SULPHATE.**—The price of *Fabbrica Lombarda* has been reduced to 2s. 2d. per oz in bulk. German is now 2s. to 2s. 1d. in bulk, Pelletier's 2s. 7d. in bottles.

The *Oil, Paint, and Drug Reporter*, referring to a report that a leading American manufacturer claims he can produce quinine at a cost of 40c. with bark at 3½d. to 4d. per unit, says that "this statement is accompanied by the remark that prices can still go lower without entailing any loss to manufacturers. We do not place any reliance in the cost price named, because no maker would herald to the world the private affairs of his business, and this matter is one of the most profound secrets of the quinine industry. It is understood, however, that quinine costs 50c. per oz. in the bark at present prices, according to a calculation made by parties closely identified with the business. The general belief is in favour of a higher market, but it lacks support from important buyers."

**PETROLEUM.**—The market remains firm at last week's prices. Messrs. W. H. Samuel & Co., commenting on the present position and future outlook, state that the low level of prices touched previous to the recent advance is to be accounted for by the considerable increase in production of crude oil, and by the possibility of a large importation of Russian oil in tank vessels during the coming season. The production of crude oil in America has steadily increased since January, the daily average for May being 70,283 barrels, against 56,418 in January and 64,612 in April. Not until May, however, did the shipments fall short of the production, and although stocks underwent a gradual decrease in each

month up to May, that month shows an increase in stocks of 146,000 barrels over April. Refined oil has, notwithstanding these circumstances, remained fairly steady in America, and in fact manifested a strong tendency to advance two or three weeks ago, but has since receded to its previous level. Freights, however, have advanced, and the c.i.f. cost has thereby been enhanced, rendering the present cost of "Royal Daylight," ex quay in Liverpool, 6 $\frac{3}{4}$ d. per gallon. That a large quantity of Russian oil may be brought upon this market during the season appears likely from the fact that there is now a large tank shipment loading for Liverpool. At the same time much will depend upon the success attending the first tank shipment. The experience of last season indicates that notwithstanding the fair quality of Russian oil, it cannot command a very large sale, except at considerably less prices than those ruling for American oil, and it remains to be seen whether the Russian refiners will be content to accept prices that will enable their oil to be placed upon this market sufficiently below American prices to command a large share of the trade.

### THE AMERICAN MARKETS.

NEW YORK, July 9.

**T**HE keeping of the national holiday of July 4, as was to be expected, interfered with the home trade, and business has not as yet returned to its usual channels. The drug market has been inactive, there being no transactions of magnitude to report; but prices are well sustained, especially where recent advances were established.

The prices sterling (in parentheses) are what the different articles would cost delivered in London, all market allowances, discounts, &c., being taken into account. Importers can, therefore, see at a glance the course of this market compared with their own.

**ALOE (CURACAO).**—At public sale yesterday, 500 boxes of various grades, mostly old import, brought 4c. (18s. 3d.) to 4 $\frac{3}{4}$ c. (19s. 6d.); to-day, 300 boxes of ordinary, partly soft, are reported by direct steamer. It looks as if low prices were no check on production.

**ALOE (CAPE).**—Thirty-five cases ordinary soft, partly drossy, sold at auction for 5 $\frac{3}{4}$ c. (23s. 9d.), or about the full London value.

**BALSAMS.**—The lot of *Para Copaiba* in first-hands has been taken off the market at 28c. (1s. 3d.), while a small lot of 6 kegs in auction brought 28 $\frac{1}{2}$ c. (1s. 3 $\frac{1}{2}$ d.). Present low rates appear to have brought out numerous buyers, for considerable quantities of *Copaiba* have changed hands lately, and none is left in the importer's hands. *Canada* is cheaper; genuine is quoted 24c. (1s. 1d.), in barrels. *Tolu.*—Some small arrivals are reported; price, nominally, 26c. (1s. 2d.) for small lots; for quantity, the second-hand holders ask much higher figures.

**COCA LEAVES** are unchanged; buyers hold off, and it is now thought lower rates will prevail before the large stock goes into consumption. Prime dark-green *Huanuco* leaves, 30c. (1s. 4d.) is nearest value.

**QUININE.**—The American manufacturers have now officially reduced their quotation to 65c. for 1-oz. vials (2s. 9 $\frac{1}{2}$ d.). The market, however, continues lifeless, with prime brands of German in bulk offering at 50c. (2s. 2d.) in quantity.

**OIL (PEPPERMINT).**—A demand has sprung up from Germany, and several sales are reported H. G. Hotchkiss, at \$3.50 (16s. 1d.) for oil in tins; there is also a small inquiry at \$3.35 (14s. net) for pure Wayne county. Holders of this grade are not anxious to sell.

**SENEGA ROOT.**—One or two lots of the new season's gathering have come on this market already; the quality is fair bright, fibrous, not chumpy, and is quoted at the low price of 44c. (2s. 1d.). This is the best time for users to lay in their yearly supply. Prices may go a little lower, but certainly not much, while there is the probability of an advance if the digging falls short; and, besides, purchasers will have the choice of the crop by buying now.

**SERPENTARIA.**—There is none in the market, and high prices are asked in Texas. This root will, it is now thought, rule very high later on.

**MEXICAN SARSAPARILLA.**—150 bales arrived this week, but are held at 10c. (5 $\frac{3}{4}$ d.). No transactions are reported, as nobody will pay the advance, confidently expecting lower rates on the arrival of independent (of the "corner") supplies from Mexico.

**JALAP.**—The stock here has been concentrated, and all outside lots bought up, as high as 9 $\frac{1}{2}$ c. (5 $\frac{1}{4}$ d.) being paid for some. There may be said to be no sellers here at present, all holding for an improved market.

### CABLEGRAM.

NEW YORK, July 22.

**Guarana.**—Prices in bond have risen considerably during the last few days. This is entirely due to a healthy demand for home consumption.

**Sassafras Oil.**—The markets are advancing, and coincident with the rise in prices consumers are buying largely.

**Peppermint Oil.**—The prevailing drought is doing serious, and, it is feared by some authorities, irreparable injury to the peppermint crop. The market shows much animation and firmness, and, owing to the expected rise in prices, the situation is altogether encouraging.

### BANKRUPTCY REPORTS.

RE GEORGE HERSHELL, 37 Moorgate Street, E.C.,  
Doctor of Medicine.

THIS debtor has had a receiving order made against his estate upon a creditor's petition. Nothing transpired as to the debts and assets. The public examination is fixed for September 3.

RE JOHN DRUMOND, late George Yard, Fenchurch  
Street, E.C., Drug Merchant.

THIS debtor applied on Friday to Mr. Registrar Hazlitt to pass his public examination upon accounts showing total liabilities 5,432l. 17s. 11d., of which 1,648l. 6s. 11d. is unsecured, against assets, consisting chiefly of an estimated surplus, 2,222l. 9s. In reply to Mr. Jacobs, on behalf of the petitioning creditor, the debtor said he had had an execution put into his house, and had paid the sheriff 10l. to go out of the premises. Previous to the sheriff taking possession, he had sold some of his furniture. His honour directed the public examination to be concluded.

THE APOLLO CANDLE FACTORY at Semmering, near Vienna, which had a large export trade, was totally destroyed by fire on Tuesday last.

A NEW LOAN for the Chemische Fabrik Rheinau, Mannheim, is contemplated. The amount asked for is a million marks at five per cent. interest, and the object is the further development of the works in quite new directions. The company is to abandon the manufacture of soda, owing to its unprofitable nature.

THE STASSFURT CHEMICAL INDUSTRY has got a lift from the director-general of the Danish customs department, who has notified that various Stassfurt salts, which are mainly potash salts (chlorides and sulphates) in combination with magnesium and calcium salts, may be imported duty-free for agricultural purposes only.

A NEW TEMPERATURE REGULATOR has been devised for use in connection with natural gas. It consists of a brass tube filled with alcohol fastened to the wall of the room. If the temperature rises above a certain degree, the alcohol thermometer closes an electric circuit which shuts the gas valve. As soon as the temperature falls below the desired degree, the valve is opened by the same method. Should the weather grow warmer, the instrument gradually shuts off the gas sufficiently to maintain the proper temperature. Moreover, the instrument can be adjusted for any temperature desired.





### Memoranda for Correspondents.

*Always send your proper name and address: we do not publish them unless you wish.*

*Write on one side of the paper only; write early; and devote a separate sheet of paper to each query if you ask more than one, or if you are writing about other matters at the same time.*

*If you send us newspapers please mark what you wish us to read.*

*Ask us anything of pharmaceutical interest: we shall do our best to reply.*

### Mr. Schacht and Reduced Prices.

SIR.—Will you allow me to inform your correspondent, "M. P. S." of Worthing, and others who, like himself, are good enough to feel interest in my pharmaceutico-political consistency, that I have no longer any part or control in the management of the general business of "Giles, Schacht & Co.," although I still continue to manufacture for wholesale use the preparations with which my name is associated.

I am, sir, your obedient servant,  
Clifton, July 19. G. F. SCHACHT. (183/15.)

### Corner for Students.

Mr. C. B. Gibson (of Margate), who took the first prize in the "Corner for Students" last week, writes:—"I must again express my deep gratitude for the help I have received from this department, feeling as I do that I have had more real help from that source than from all the text-books I have worked from."

**Byno-pepsinæ.**—A few weeks back, in reply to a query, byno-pepsinæ I translated malto-pepsin, which is a powder. I have only just observed in a new list of Allen & Hanburys that they make a liquid byno-pepsin. Your querist did not give any idea as to how it was ordered, so that I do not know which was intended. G. B. of S. (182/59.)

### Anti-calcaire.

SIR.—Someone about two weeks ago asked the composition of "anti-calcaire." I have just tested it, and have come to the conclusion that it is composed of alum, lime, and carbonate of soda, lime preponderating. There was a trace of iron present, but I believe that was an impurity in the lime.

Yours respectfully,  
C. B. G. (182/23.)

### Antiseptic Tooth-powder.

SIR.—Regarding the abstract of Dr. A. D. Macgregor's paper on "Boric Acid in Mouth Affections," from the *British Medical Journal*, which was printed in last week's CHEMIST AND DRUGGIST, it may be worth noting that I remember having seen a prescription written some three years ago by a West-end Edinburgh dental practitioner for a tooth-powder containing boric acid. My recollection indicates that the recipe contained precip. chalk, carb. magnesia, orris, boric acid, and perfume. For several years a chemist in town has prepared an antiseptic tooth-powder which has found some favour. The antiseptic in it is, I believe, boric acid. I have prepared some tooth-powder according to Dr. Macgregor's formula, and tried it, but I am not enamoured of it. It does not, in my opinion, possess all the characteristics which the doctor says a tooth-powder should, and the one I allude to does, possess. It is not "agreeable to the taste," and its appearance is against it. It is not such a recipe as a chemist who knows the taste of the public would adopt. It is essentially a "prescription."

EDINBURGH PHARMACIST.

16/182. *Electic.*—Non-calcareous Tooth-powder.—A good powder is made from heavy carbonate of magnesia 5 parts, powdered orris 1 part, and otto of rose q. s. to flavour. The addition of 1 part of powdered soap is an advantage.

**Essence of Rennet.** [Several correspondents ask for details of this preparation.]—The following are the directions given in our DIARY 1884 for the preparation of rennet essence:—Remove the salt from a rennet and weigh out 5 oz. of it, wash the rest with 3 oz. of rectified spirit. (If the rennet is received fresh from the butcher put 5 oz. of salt into it and hang it up for three days before maceration.) Cut the rennet into small pieces and macerate for ten days in a solution consisting of:—

The salt from the rennet					
Lactic acid	..	..	..	..	3j.
Glycerine	..	..	..	..	3j.
Water	..	..	..	..	3xxxv.

Then filter and add the spirit before referred to. Colour if necessary with tincture of cochineal. The maceration should be performed in as cold a place as possible, and if more than one rennet is to be used, each one should be macerated by itself.

180/38. *G. Ratcliffe.*—Sticky Fly-papers.—Make a varnish according to the following formula, and paint it lightly over sheets of paper.

Resin	..	..	..	..	4 oz.
Castor oil	..	..	..	..	2 "
Essence of lemon	..	..	..	..	1 drachm
Methylated spirit	..	..	..	..	1 pint

Shake well until dissolved, then strain.

**Lac Bismuthi** is a mixture of hydrate of bismuth with mucilage of tragacanth, and an aromatic water. The original maker has stated these facts, but has given no particulars as to the manufacture of the preparation.

181/25. *Subscriber.*—Lime Juice, to Clarify.—The opacity is due to an overplus of mucilage; this is generally avoided by expressing only a portion of the juice from the fruit. The addition of rectified spirit might clarify the juice to some extent, but the quantity required is a strong objection to this course. Has any reader practical experience which would assist "Subscriber"?

### Bacterium Termo and Consumption.

The writer of the letter on this subject in our last issue was Dr. W. H. Lambert, of 166 Islington, Liverpool.

183/23. *Rusticus.*—Glycerine and Cucumber.—We gave formula for a preparation resembling this on page 551 of last volume. You will find other references to the same subject in the index.

182/50. *J. W.*—A formula for salad dressing was given in our last volume, page 369.

### Information wanted.

What is Unguentum metallorum?—*Moth.*

62/183. *Spongia.*—To Restore Sponges.—Other correspondents have reported good results with the following process:—Soak the sponges for ten minutes in a 2-per-cent. solution of permanganate of potash, then in a 2-per-cent. solution of oxalic acid with a little sulphuric acid for half an hour; lastly in a 2-per-cent. solution of carbonate of potash. The permanganate gives a brown tint, the acid bleaches, and the carbonate of potash restores the desired yellow colour. About 3½ oz. in a gallon of water makes a 2-per-cent. solution.

64/183. *Cyclist*.—The dose of **Bromidia** recommended by the makers is 5ss. to 3j. in water or syrup every hour until sleep is produced. They say that every fluid drachm contains 15 grains each of bromide of potassium and chloral, and  $\frac{1}{4}$ -grain each of ext. cannab. Ind. and hyoscyam. It is clear that to correspond with that formula, the water should be (in the formula given last week) "ad 5xvj.," not "Oj." The medicine should be measured, and ought not to be repeated recklessly.

Can **Ringbone** be removed from a horse's leg by blistering? The following has been used several times, but has not removed it:—

Hyd. iod. rub.	..	..	..	..	3ij.
Pulv. cantharidis.	..	..	..	..	3ij.
Ung. resinae	..	..	..	..	3j.

Mix.

J. W.

[Ringbones often become absorbed by repeated applications of blister whether of the biniodide or others, but they more frequently do *not*. The object of blistering is, if possible, to excite absorption, and failing that to prevent a further deposit of ossific matter or growth of the ringbone, as it is familiarly called. As ringbones (besides being hereditary) are generally caused by concussion, it is highly desirable that a horse under treatment should have rest. Give him a wet bottom or marsh land and a long rest, and then your biniodide will often carry on the absorbent process long after its effects outside have ceased to be visible. We will shortly publish some remarks on the subject of ringbones and bony deposits generally—their cause and treatment.]

62/179. *D. O. S.*—**Calf Meal or Milk Substitute**:—

Freshly ground linseed	..	..	..	7 lbs.
Barley meal	..	..	..	14 "
Wheat meal	..	..	..	14 "

Mix. A small quantity is to be mixed into a paste with cold water, then boiling water is poured on it.

33/181. *P. H. C.*—**Hay Fever**.—We should not be inclined to add prescribing to our many duties in this section, but we may give you some suggestions which we have already published. Dr. Morell Mackenzie (*THE CHEMIST AND DRUGGIST* 1884, page 288) recommends valerianate of quinine 1 grain, with pil. asafetida co. 2 grains, to be taken by persons liable to the complaint as soon as the hay season sets in, doubling the dose after ten days or a fortnight; tincture of opium 5 to 7 drops twice daily with a saline purgative on alternate mornings. Dr. Mortimer Granville (*THE CHEMIST AND DRUGGIST* 1884, page 333) says the snuff prescribed below has very surprising effects: Very finely powdered borax, 20 grains; capsicum (not cayenne pepper), recent, very finely powdered and quickly dried, 15 grains; carbonate of ammonia, finely and quickly powdered, 10 grains. Dr. Granville attaches great importance to the manner of preparing this snuff. For his remarks on this see his letter to us on the page quoted.

182/35. **Elixir Proprietatis**.—*Mr. T. S. Wiegand* (Philadelphia, U.S.A.) informs us that the tr. aloes et myrrhae, U.S.P. 1850, is, or was, given in the States for this elixir.

182/1. *Arbeitsam* asks, "Could any means be suggested whereby nascent AmCl may be evolved, without the aid of heat, suitable for inhalation?" [Yes, there has been an apparatus for the purpose in the market for some years, which has been recently improved by Messrs. Burroughs, Welleome & Co. The original idea was two bottles, one partially filled with hydrochloric acid and the other with liquid ammonia. A bent limb of a Y tube is placed in the air-space of each bottle, and by inhalation the vapours of the acid and alkali are drawn out and unite to form ammonium chloride. The apparatus has now been so improved that the vapour is washed before it is passed into the mouth.]

## LEGAL QUERIES.

16/182. *Electric*.—**The Poison Register**.—Is a chemist bound to hand over his register to a policeman whenever he may think proper to ask for it, and assist said policeman to make a copy of entries for a period of months (six), as I was recently requested to do without any warrant or order being shown me?

[The Pharmacy Act does not stipulate that the poisons register must be shown whenever a policeman may call for it, but we have no doubt a magistrate could order it to be shown, and as a rule we cannot see why there should be any objection to show it to a policeman if he has any fair reason for asking for it. But we do not think either policeman or magistrate can compel the pharmacist to assist in making a copy of the said entries. **Sheep Dipping Compositions**.—If you know of any unregistered persons selling arsenical or other poisonous preparations, communicate with the Secretary of the Pharmaceutical Society either yourself, or collectively with other pharmacists in the neighbourhood, and express your willingness to provide the necessary evidence. If the Pharmaceutical Council refuse to take action be good enough to let us know what their reason may be.]

56/183. *Beta*.—You certainly may not use the word "lanoline" without the consent of the patentees.

62/183. *Spongia* asks:—"Supposing I put up and advertise as a patent medicine tic powders or teething powders, how should I proceed in selling single powders? Would I be infringing the law by so doing? In selling Fenning's or Stedman's powders I may sell singly from a broken stamped packet, but I am puzzled how to proceed when putting up packets myself."

[We cannot see any reason for being puzzled. Surely you may do with your own powders what you may do with other people's powders! If you simply call your powders "Teething Powders," and do not recommend them by any written or printed announcement, or call them "Spongia's," nor otherwise claim a proprietary right in them, you may sell them singly or by thousands without stamping them. You may recommend them as freely as you like by word of mouth.]

## Licences for Selling Medicines.

SIR,—Referring to my inquiry of a week or two ago respecting a licence for selling "medicines," I beg to enclose a quotation from the instructions to the excise on which the excise officer here bases his claim. I shall be much obliged if you will give your opinion on it, and advise me as to the best course to pursue, as my customers are afraid to sell pills, &c. C. G. (28/184.)

### Quotation from Instructions.

"Every person being the proprietor, maker, or compounder of, and every person vending, or exposing for sale, or keeping ready for sale any drugs or other preparations or compositions whatever, used or applied externally or internally as medicines or medicaments, for the prevention, cure, or relief of any disorder or complaint incident to or in any wise affecting the human body, must take out a licence. 42 Geo. III., c. 56, sec. 6. Penalty, 20l."

[The above is evidently not a correct quotation from the Act, and we cannot think it was sent out as copied by the Board of Inland Revenue. There is no Act of Parliament which renders it necessary to take out a licence for selling drugs or medicines generally, though it is quite likely that our correspondent's pills are so labelled or advertised as to render a patent-medicine licence necessary. The best plan, if in doubt, is to send a box of the pills, with all printed matter concerning them, to the Secretary of the Board of Inland Revenue, Somerset House, London, and ask if a licence is required for selling them.]

55/184. *Anti-Jurist*.—Pharmaceutical chemists must claim exemption from jury service when the lists are published in September. They are not exempt from service as overseers. Chemists and druggists are not exempt from jury service.



## DISPENSING NOTES AND QUERIES.

[The opinion of practical readers is invited on subjects discussed under this heading.]

## TROUBLESOME MIXTURES.

## No. 1.

SIR,—Will any of your readers kindly explain the reason why the following prescription should deposit crystals. I made it up and my customer returned it and said he had sent it to several chemists in the south of England and in every case it was a dark-bluish mixture with a crystalline deposit; mine was a brownish mixture with no deposit.

Ammon. brom. ..	..	..	..	3ij.
Tinet. nucis vom. ..	..	..	..	3iv.
Sp. chloroformi ..	..	..	..	3ij.
Magnes. sulph. ..	..	..	..	3ss.
Sp. ammon. co. ..	..	..	..	3iv.
Syr. zingib. ..	..	..	..	3j.
Aq. menth. pip. ad	..	..	..	3vi.
3j. ter die ex. aq.				

MIDLAND. (6/23.)

## No. 2.

SIR,—I had the following prescription handed to me to dispense:—

Tr. nucis vom. ..	..	..	..	3j.
Liq. bism. ad	..	..	..	3j.

which made a clear beautiful mixture; but on dispensing it a second time it became quite muddy. I used liq. bism., B. P. (fresh), and found it to be neutral, and free from impurities. Kindly inform me through your valuable columns what you think it would be due to. Enclosed I send a sample.

Yours truly,  
J. SMART.

[Mixture No. 1 cannot be dispensed without the crystalline deposit, which is simply a portion of the salts thrown out of solution by the spirituous preparations. No. 2 we can only get clear, but are not surprised that our correspondent happened on one occasion to get a muddy one. In the pharmacopœial solution the bismuth appears to exist in a somewhat critical state between the normal and basic conditions, and though the solution is perfectly stable under ordinary conditions, under others, which seem inexplicable, a deposit of bismuth takes place. We understand that in manufacturing on the large scale this proneness of the solution to become basic is experienced. The mixture which Mr. Smart sends us has the blue colour referred to by *Midland*. It takes some time before this colour is developed, and no doubt *Midland's* mixture would acquire the colour if let stand long enough. We believe that the coloration is due to reaction between the igasuric acid of the nuxvomica and the alkali in the mixtures. What experience have our readers on this point?]

## QUININE PILLS.

Quinine sulph. ..	..	..	..	gr. v.
Ft. pil. ter die.				

SIR,—The above prescription was presented with the request that I should make them small, like they had received them before. It looks difficult to avoid a large-sized pill, and I should be glad if you could suggest an excipient.

Faithfully yours,  
QUINCE.

[An excellent mass is made with tartaric acid and a little glycerine and water. For a dozen pills take 6 grains of tartaric acid and rub it up with the quinine until it becomes crumbly, then add two drops each of glycerine and water, and mass quickly. Some object to tartaric acid because it alters the chemical constitution of the quinine salt, sulphatartaric being formed, but this is therapeutically the same as the sulphate. Glycerine of tragacanth in the proportion of 1 to 4 of quinine sulphate makes also a good pill, but it is bulky.]

182/7. *Inquirer*.—If a doctor sends a prescription for a mixture (not dangerous) marked "Special: To be taken as directed," is he justified in condemning the dispenser as an

unpardonable offender for sending the mixture to the patient without further instructions respecting dose? What is the rule in such cases?

["To be taken as directed" implies that the prescriber has given directions, but it is not uncommon to find that the prescriber has omitted to give directions, and for that reason it is always safe for the dispenser to ask the customer how the medicine is to be used, and so ascertain whether the directions are sufficient or not. The prescriber was not justified in censuring the chemist as above stated.]

## Botanical Queries.

178/28. *J. M. J.*—*Seaweeds*.—To prepare these for decorative purposes, when the plants are brought home steep them in a basin of fresh water over night, and then in the dye-bath until they acquire the proper shade. Now remove them, one at a time, to a shallow plate, and while the plant is afloat slip a sheet of paper dexterously beneath it and lift out. Now transfer to a sheet of drying-paper, and dry in the ordinary way between sheets of grey filter-paper, under pressure. When ready for mounting, have a paste prepared as follows:—

Powdered tragacanth ..	..	..	3j.
" acacia ..	..	..	3j.
Glycerine ..	..	..	3ss.
Oil of cloves ..	..	..	12 drops
Boiling water ..	..	..	3vj.

Add the boiling water gradually to the gums contained in a mortar, stirring constantly so as to form a smooth paste, then add the glycerine and oil of cloves. Now spread a very thin layer of this over a metal surface (such as the back of a tea-tray), and upon this place the side of the plant which you wish to be gummed. This is done by picking up the plant with a pair of forceps, and dexterously placing the whole of it on the tray at once. Give it a touch here and there with the forceps, so as to ensure that all parts are gummed, then lift cautiously, but not too slowly, with the same instrument, and transfer immediately to the place desired. See that all the parts are properly in place, cover with a sheet of dandy and rub smooth with the hand; then remove the paper; examine the specimen, and if it requires adjusting, do so, and place under pressure if necessary. This is the best and quickest way to mount botanical specimens, and there is no cement we know of so thoroughly satisfactory in every respect as the tragacanth paste.

*S. Griffith*.—The specimens were received in good condition, and we trust that you will pack any others which you may send with equal care. It is advisable to line the box with waxed paper, and to place a piece of wet blotting paper at the bottom. As you state, the specimens are orchids. No. 1 is the *Orobanchë Rapum* of Thunb., referred by Hooker in his "Student's Flora" to *O. major*, Lin., and stated by him to be found on roots of shrubby species of papilionaceæ from Kirkcudbright, southwards. It is rare in Scotland and Ireland. Nos. 2 and 3 are forms of *Gymnadenia Conopsea*, Br., the fragrant *Gymnadenia*. This grows plentifully in heather moors, woods, and dry pastures, and in the Highlands is found as high as 2,000 feet. The odour is very fragrant and scents the air around where it grows with a perfume not unlike that of the jonquil.

Is Coca useful to take for exhaustion after long bicycle rides or other severe exercise; and what is the best form to take it in? I have tried chewing the leaves, without benefit.—C. G. (28/184.)

[Chewing the leaves is said to be useful to prevent the exhaustion resulting from exercise. We do not know that coca or any other medicament can make a tired man feel fresh. You should chew the leaves on your journey.]

62/183. *Cyclist*.—*Hair Oil*.—The oil recommended for hair oil was called American salad oil. We have no doubt cotton-seed oil was intended. This is much cheaper than olive oil, and either by itself or mixed with olive oil seems well suited for hair oils, pomades, &c. What you buy as "olive oil" is not at all unlikely to be cotton-seed oil. Italy imports large quantities of the latter, and, presumably, re-exports it with a new label.

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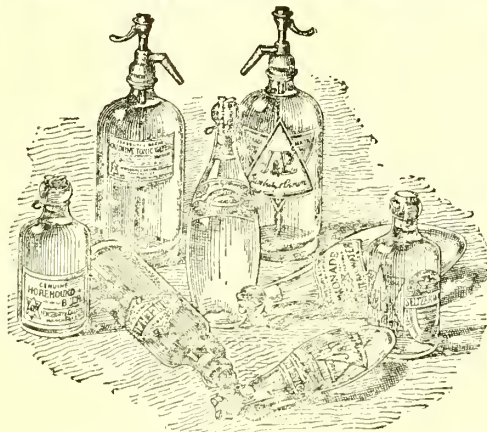
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CELLOIDINE (Patent) -- --	Gelatine plates ... --	Purest Pyroxylin; inexplusive.
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GLYCERINE -- -- --	S.G. 1260, double distilled, brilliantly white, odourless; also lower S.G. and qualities	Free from lime, chlorides, metals; will stand severest chemical tests.
IODINE -- -- --	Resublimed, fine scales ... --	Purest.
IODIFORM, Absolut. -- --	Crystals and powder of soft touch ...	Purest; made by electrolysis.
PARALDEHYD ... ..	... ..	Absolutely purest.
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" IODIDE -- --	Fine white dry regular crystals ...	Apply Barytic and other tests. This will never change colour.
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PEPSIN PORCI (100%) ...	White, sweet, odourless powder --	Freely soluble in water, not hygroscopic, and will not deteriorate; will dissolve (by Wittstein's test) 100 parts of white of egg and 250 parts of fibrine.

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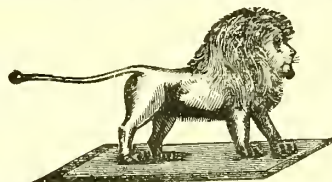
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Chloride of Sodium	}	...	...	...	.035
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Moisture	...	...	...	...	.82
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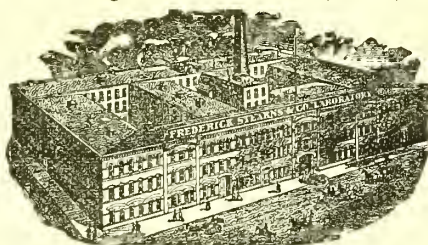
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2/9.. " Pâte .....	15/4	4/6.. Chassalng's Wine .....	38/9	2/3.. Papier Fayard .....	13/6	4/6.. Reynal's Bougies .....	37/10
6/3.. Bay Rum .....	67/	2/9.. " Pills .....	24/4	1/11.. Ditto .....	7/3	2/9.. Ricord's Injection .....	24/4
5/3.. " Lozenges .....	31/	4/6.. Clin's Bromide Cam. Drages	45/	4/.. Papier Franean .....	24/4	4/6.. " Capsules .....	36/
2/.. Bello's Charcoal .....	15/4	5/.. Kau Botot (Genuine) .....	40/1	2/3.. Ditto .....	14/5	9/.. " Syrup .....	90/; 4/6; 42/
1/3.. " Lozenges .....	14/5	3/.. Ditto .....	24/4	1/9.. Pâté Aubergier .....	15/4	1/6.. Star Paper .....	11/
4/6.. Blancard's Pills .....	32/5	2/6.. Espic's Cigarettes .....	13/6	1/9.. " de Berthé .....	15/4	2/9.. Vallet's Pills .....	22/6
2/8.. " Ditto .....	18/	6/.. Elixir de Coca .....	56/9	2/9.. " de Coca .....	24/4	1/9.. " Ditto .....	14/5
6/.. Brou's Injection .....	27/	2/9.. Flon's Syrup .....	22/6	1/9.. " de Georgé .....	14/5	4/6.. Veloutine (White, Pnk, Yel.)	37/10
6/.. Bugeaud's Wins .....	36/	2/.. Gayetty's Paper .....	15/4	1/11.. " Ditto .....	9/	3/6.. " ditto .....	27/
4/.. Bully's Vinegar .....	32/5	2/3.. Granules Arsen. Acid .....	13/6	1/6.. " de Nafé .....	13/6	2/3.. Vichot's Trochisques .....	21/8
2/.. " Ditto .....	16/3	2/9.. " Iron .....	14/5	1/9.. " Regnaud .....	14/5	4/6.. Valentine's Meat Juice .....	38/
4/6.. Candé's (Lait Antéphil.)	39/8	2/9.. " Soda .....	15/4	7/.. Pierlot's Valerian .....	59/5	4/6.. Vin de Coca Mariani .....	39/8
4/6.. Capsules Bromide Camph.	45/	2/9.. Grimant's Syrup Lime .....	23/5	2/9.. Rabuteau's Drgées Ferrug.	24/4		

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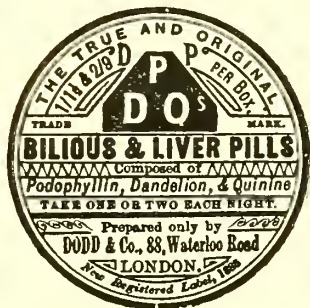
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Peruvian Mixture Capsules.....	10/ & 7/6	3/ & 2/
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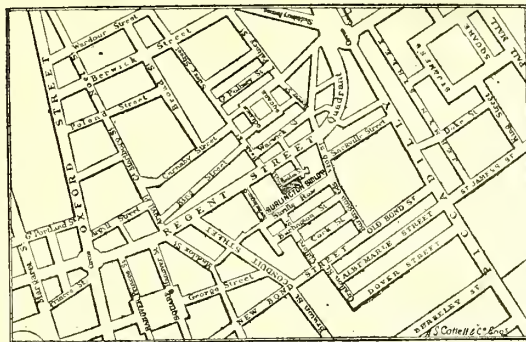
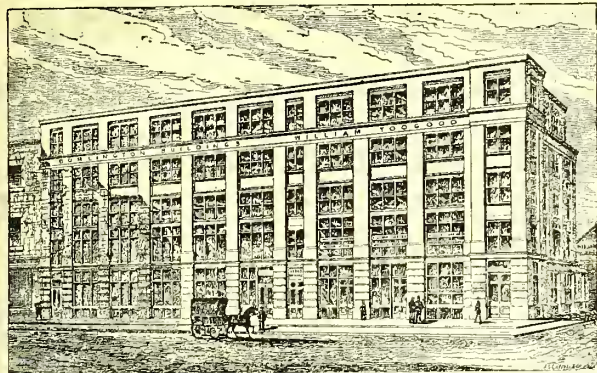
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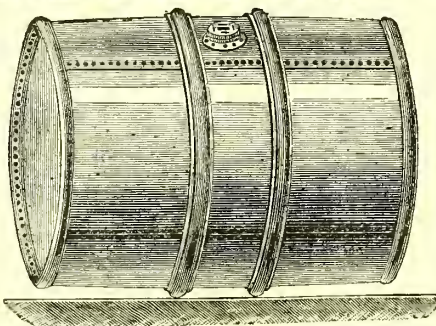
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55 " " " " " " " "	0.8366 ... ..	19/3
50 " " " " " " " "	0.8482 ... ..	18/7

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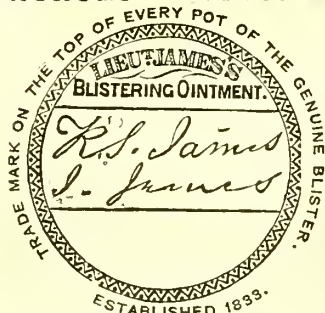
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## FLUID SHEEP DIP.

NON-POISONOUS.

THE BEST AND MOST RELIABLE, AND THEREFORE THE CHEAPEST.  
ANTI-FRICTION GREASE, OILS, PAINTS, TAR, ROBIN, &c.  
PITCH, in Boxes and Casks, from 1 lb. to 4 cwt.

*Prices and samples on application.*

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For Cleaning and  
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Pickering's Furniture Polish, Plate Powder, Knife Powder,  
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JOSEPH PICKERING & SONS, SHEFFIELD.

**A1 in Quality.**  
**A1 in Style and "Get-up."**  
**A1 in Therapeutical results.**  
So be sure to ask for  
**A1 Brand.**

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**MENTHOL versus HOT WEATHER.**

A Show-case, fitted with dummies, price 2s., given away with a 6 dozen order.  
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**BRADLEY & BOURDAS'S**  
**ALBATUM or WHITE ROUGE,**  
*For Cleaning Gold, Silver, and Plated Goods.*

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# W. KEMP & SON,

IMPORTERS OF

# HONEY & BEESWAX, HORNCastle.

The Imports of New Crop Honies are now to hand, and include the finest possible qualities. Prices extremely low. Samples on application.

# W. KEMP & SON, LINSEED CRUSHERS, HORNCastle.

Best Light Crushed Linseed, strictly pure.  
Ordinary Crushed Linseeds.

Linseed Meal.

Samples and Prices on application.

Gold Medal, Adelaide, 1881.  
Order of Merit, Melbourne, 1880.  
Diploma of Merit, Vienna, 1873.

*Established over Half a Century.*

# PASTE.

## CARBOLICA

Is the Best and Cheapest NON-POISONOUS DISINFECTANT.  
CARBOLICA POWDER is put up in large and small tins and packets; also in bags and casks.  
CARBOLICA FLUIDS can be had in stoppered bottles of all sizes also in drums  
CARBOLIC ACID, 95 per cent.—CARBOLATED CREOSOTE—CHLORIDE OF LIME, &c., &c.

ALL GOODS produced in BEST STYLE at LOWEST PRICES.

Special Quotations to shippers and large buyers.

[For WHOLESALE PRICE LIST apply to the CHEAPEST HOUSE in the TRADE,  
HAMILTON & CO., 418 High St., Wandsworth, London, S.W.]

Write to-day for  
NEW PRICE LIST  
(sent post free on appli-  
cation).  
This will be found worthy  
the attention of all de-  
siring of increasing their  
trade.



**OXFORD ROAD DISTILLERY, MANCHESTER.**

Important to Chemists and Druggists.

**REVISED AND REDUCED LIST.****Messrs. J. GIBB SMITH & CO.**

Beg to call the attention of Chemists and Druggists to the undermentioned Prices of Pure Spirits of Wine:—

Strength per cent.	Specific Gravity.	Price per Gallon.
63 over Proof	0.8298	20/3
60	0.8298	19/10
55	0.8366	19/3
50	0.8482	18/7

Special quotations for large quantities. Terms: CASH ON DELIVERY. Jars to be returned or paid for.

Orders from the country must be accompanied with a remittance, including the price of the Jars, which are charged as follows:—2 galls., 5/; 3 galls., 3/6; 4 galls., 4/; 6 galls., 6/. When the empties are returned the money will be repaid.

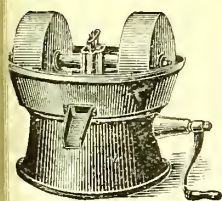
P.S.—SHERRY, for Pharmaceutical purposes ... 5/6 per gall.  
MALAGA, Red, ditto ditto ... 5/6

N.B.—1/2d. per gall. allowed to those who send their own Jars and take delivery at our warehouse.

**PURE SPIRITS OF WINE.**

60 o.p., 20/3 per gall.; 56 o.p., 19/9 per gall.

1/ per Gall. Discount for Cash with order.

Further allowance for quantity. **STEAM STILL ONLY.****GEORGE PHILLIPS & CO.,****ST. ANDREW'S DISTILLERY, CLERKENWELL RD., LONDON, E.C.****FOLLOWS & BATE, LIMITED, ENGINEERS, MANCHESTER.****SPECIALTIES.**

Drug Mills, Tincture Presses in Wood and Iron, Edge Runners, Mixing Machines, Pan Mills, Paint and Colour Grinding Machines, &amp;c.

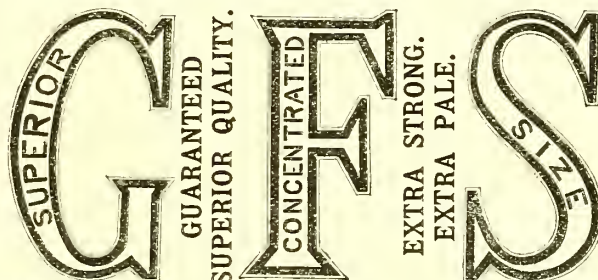
PRICES AND PARTICULARS ON APPLICATION.

**Matthews's Fullers Earth.**

Used in the Royal Nurseries, and highly recommended by the Faculty; it protects the Skin from cold winds, chaps, &amp;c., and preserves the Complexion.

6d. &amp; 1s. Boxes.

SOLD BY ALL THE WHOLESALE HOUSES.

**HOUSE & CO., 12 WIGMORE STREET, LONDON.**

More economical than ordinary Size; more readily prepared for use. In 1 lb. Packets, in Boxes of 28, 56, and 112 lbs.

**GEORGE FARMILOE & SONS'**

Lead, Colour, and Varnish Merchants,

34 St. John's Street, West Smithfield, LONDON, E.C.

SILVER MEDAL  
I.E. 1884.THE ONLY  
MEDAL AWARDED  
FOR THIS  
SPECIALITY**CHLORIDE OF LIME!**

IN AIRTIGHT WATERPROOF

INVENTORS AND

MANUFACTURERS

**NATIONAL CHEMICAL CO., LONDON**

THE N. C. CO'S. PACKAGES HAVE STOOD THE TEST FOR MANY YEARS, AND CAN ALWAYS BE RELIED UPON TO GIVE SATISFACTION.

KEPT IN STOCK BY ALL WHOLESALE DRUGGISTS &amp;c.

SEE THEIR PRICE LISTS.

SILVER MEDAL  
I.E. 1884.BEWARE  
OF OTHER '50'  
CALLED AIRTIGHT  
PACKAGES.**BAILEY'S MINTON-WARE BOWL DRUG MILL.**

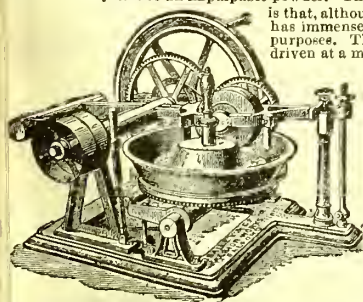
(CARR'S PATENT.) FOR HAND OR POWER.

Will reduce Crystals to an impalpable powder. The chief feature of this machine is that, although it can be turned with ease, it has immense frictional power for levigating purpose. This is caused by the runner being driven at a much greater speed than the bowl.

Diameter of Bowl, 18 inches.

Price, £11.

Lists, &amp;c., on application.



Mr. J. DUTTON, Rock Ferry, Birkenhead, says:—“The Mill you sent me answers admirably for powdering all kinds of Salts, and for many other things, such as Opium, Scammony, Soap, Almonds, Mace, &amp;c. It also effects a great saving of time and labour in mixing various Powders, such as Tooth Powder, Lemon and Kali, &amp;c., and proves a very useful apparatus in the shop.”

**V. H. BAILEY & CO., ALBION WORKS, Salford, MANCHESTER.**

Starching made easy and pleasant.

Prevents the iron sticking to the linen.



Suitable for hot or cold water starch.

Sold in 1d., 3d., 6d., and 1s. Packets, and in Large Boxes, for Hotels, Laundries, &amp;c., 5s., 10s., and 20s. each.

Wholesale by Maw &amp; Sons, Evans, Sons &amp; Co., Southall Bros. &amp; Barclay, Wyleys &amp; Co., &amp;c.



THE ONLY PERFECT ENEMA OBTAINABLE.

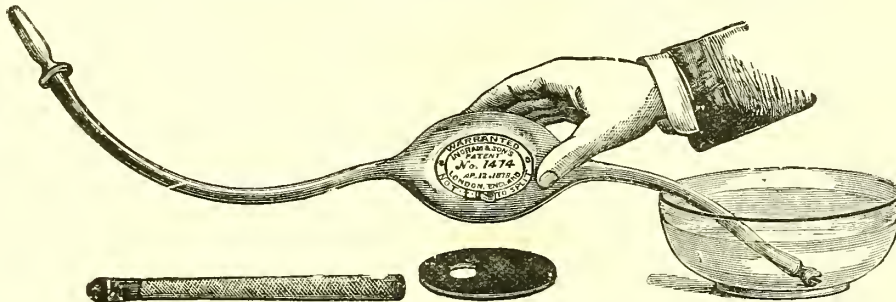
# INGRAM'S IMPROVED HIGGINSON ENEMA AND SYRINGE APPARATUS

(BY ROYAL LETTERS PATENT).

Made without Seams or Ribs by our Patent Process of dipping in a solution of India Rubber, thus adding great strength and durability.

NONE GENUINE UNLESS STAMPED WITH NO. OF PATENT 1474.

CAUTION.—The only  
Enema made without  
Ribs.



All Imitations may be  
detected by the Ribs on the  
Surface, and are always  
liable to split.

WARRANTED NOT TO SPLIT.

A.—Metal Pin Valve.

INGRAM'S IMPROVED PATENT SEAMLESS ENEMA is perfectly smooth on the surface, will not become hard or sticky, will not leak, and will not admit air while injecting or refilling. Specially prepared to resist the heat of tropical countries.

The great superiority of INGRAM'S IMPROVED PATENT SEAMLESS ENEMA over all others has given rise to various imitations, and it has become imperative that the Patentees should, in order to prevent deception, explain the process of manufacture of their enema and the mode of manufacture of imitations thereof, as they have undeniable proof that inferior enemas are positively being sold as their "advertised" patent seamless enema.

INGRAM'S IMPROVED PATENT SEAMLESS ENEMA is made by a new patent process, viz. : By repeated dipping in a solution of India Rubber until the required substance is attained. This process adds greatly to its strength and durability, and, at the same time, dispenses with all seams, which, as is well known, are weak points in an enema. This improved mode of manufacture (the result of long study and experience) enables the Patentees to produce a perfect enema without seams, thus overcoming the great fault to be found in all other enemas, viz. : splitting and leaking, which has always been a source of trouble.

INGRAM'S IMPROVED PATENT SEAMLESS ENEMA is fitted with improved valves, which prevent the admission of air with the fluid and can at any time be repaired, if necessary.

**CAUTION.**—Imitations of INGRAM'S IMPROVED PATENT SEAMLESS ENEMA are made of several pieces of Sheet India Rubber, which are cemented together and shaped in a mould, thus producing ribs on the surface, and enemas so manufactured are always liable to split and leak at the seams, and thus to become quite useless.

INGRAM'S IMPROVED PATENT SEAMLESS ENEMA may be distinguished from all imitations by its entire freedom from ribs of any description on its surface, and by having an improved metal pin valve at the suction end A ; and it is acknowledged to be the only perfect enema obtainable.

Patented in England, No. 1474, April 12, 1878; in France, No. 126,909, October 11, 1878; and in America, No. 212,939, March 4, 1879.

To be obtained of all Surgical Instrument Makers, Druggists' Sundriesmen, Chemists and Druggists, in the three following qualities:—

No. 1a. Highly Polished, in Red, Green, Blue, Black, or White.

No. 1b. Unpolished, in Red, Green, Blue, Black, or White.

No. 2. Unpolished, in Drab only.

Favourably noticed in "British Medical Journal," December 13, 1879 ; in the "Lancet," January 8, 1880 ; and in "British Medical Journal," September 30, 1882.